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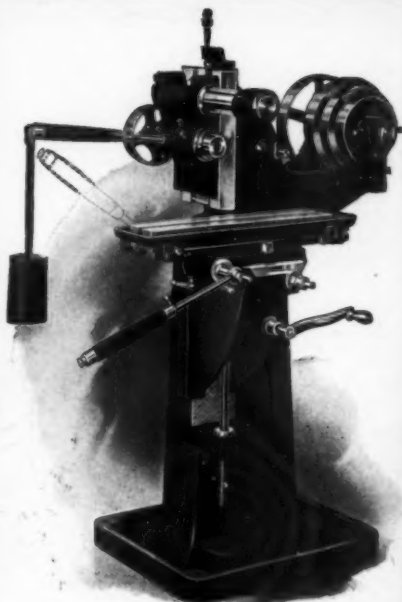
Issued Every Month

For Free Distribution to Users
of Machine Tools

HITCHCOCK'S
**MACHINE
TOOL LIST**

A Reference Book for Buyers
of Iron Working Machinery

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago



"Whitney"
Hand & Weight (feed) Milling Machine

For Cam Cutting, Gear Cutting, Key Seating, Profiling, Slabbing, Slotting, etc., this machine is the handiest, most adaptable, and most efficient on the market.

Catalog No. 10 gives full particulars

The Whitney Manufacturing Co.,
233 Hamilton St., Hartford, Conn.

—with
getting

Wait

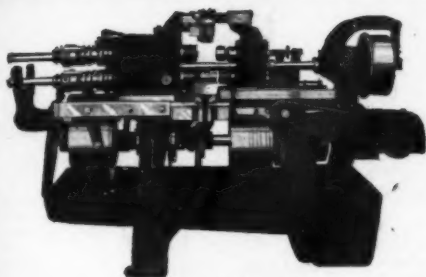
You
or even

You
work in
operation

Send

THE

NEW YORK
CHICAGO
BOSTON



The Acme Automatic

**A machine that will turn out more parts
—with greater accuracy—than you have been
getting, would be profitable to you.**

With an Acme Automatic—

**You can do three, six, eight,
or even more operations at once—**

**You can complete any of this
work in the time of the longest
operation—**

**You can get uniform accuracy
with the use of regular tools, and
exceptionally close accuracy by
the use of shaving and reaming
tools. The Acme Method is fully
automatic. It decreases the time
of operation and lowers the cost.**

Send samples and let us tell you about the method.

Ask for booklet "200 Reasons."

THE NATIONAL-ACME MFG. CO.
CLEVELAND, OHIO

NEW YORK, 77 White St.

CHICAGO, 23 S. Jefferson St.

BOSTON, 141 Milk St.

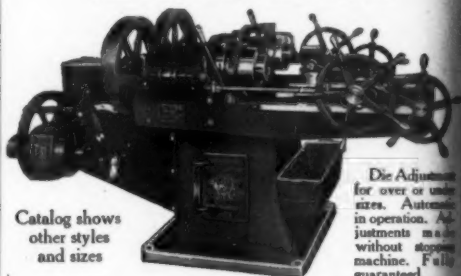
DETROIT, Majestic Bldg.

ATLANTA, 3d Nat'l Bank Bldg.

MONTREAL, in St. Henri at G. T. R.

"Standard" Double Bolt Cutters

With Constant Speed Motor Drive



Catalog shows
other styles
and sizes

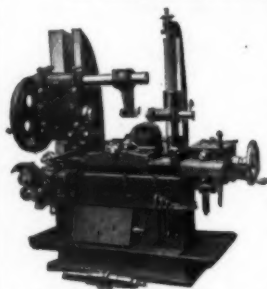
Die Adjustments
for over or under
sizes. Automatic
in operation. Ad-
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without stopping
machine. Fully
guaranteed.

Universal Machine Company

Enterprise St., Bowling Green, Ohio

For Cutting Accurate Gears

In All Sizes, for All Purposes



NEWARK GEAR CUTTING MACHINES

are automatic machines
for cutting smooth-run-
ning, accurate gears for
all purposes. They are
simple in construction
and positive in operation,
with accurate indexing
mechanism. Don't buy
a gear cutter until you
are posted on the
Newark. We believe it is
just what you are looking for.

Want Catalog?

Newark Gear Cutting Machine Co.

69 Prospect St., Newark, N. J.

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Adjustment
or under
Automatic
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stopping
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pany

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GEAR
MACHINES

machines
ooth-run-
gears for

They are
instruction
operation,
indexing
Don't buy
until you
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believe it's
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e Co.

The Principle of Spiral Gear Generation on the Farwell Hobber

is practically the same as on a milling machine—you merely divide the lead by the feed, and gear up to get one extra turn of the blanks while feeding the length of the lead.

We will be glad to send any one interested in gears a copy of the Farwell Gear Hobber Book.

Write for your copy today

The Adams Co., 935 Hamilton Street,
Dubuque, Ia., U. S. A.

FOR TOOL ROOM AND FACTORY

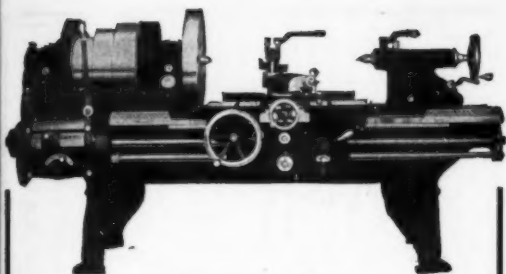


High Grade 15-Inch Thoroughly Modern Lathe

A machine of dependable accuracy that won't chatter or spring under the heaviest cuts; that has the weight and strength to give it capacity and durability; that in design and construction embodies the latest and best of up-to-date ideas. A lathe that will make good no matter where you use it.

If you will write for price, you will find that attractive, too.

Rockford Tool Co. Harrison Ave. & 11th St.
Rockford, Ill.



Consult

The Second-hand Lists of this Journal and see how few LeBlond Lathes are Listed by Machinery Dealers. And we have been building Lathes for 25 years.

This is mighty strong evidence that the double friction back gears, the hardened steel spindle bearings, one piece box section apron with drop forged gears, *do* increase the productive life of a LeBlond Lathe.

Details sent on request

The R. K. LeBlond M. T. Co.
Cincinnati, Ohio



New Haven Massive 62-Inch Lathe

With All-Geared Head

Furnished with either
a. c. or d. c. motor drive,
or with single pulley
belt drive. The illustra-
tion shows a variable
speed motor.

This is one of the New Haven line of lathes that we recommend for the heaviest and most exacting service. It has exceptional power and an exceptional capacity for turning out a large amount of work of exceptional accuracy. Its wide range of speeds and feeds enable the operator to adapt it to the work in hand, whatever it may be, to the best advantage. Furnished with any length of bed. With a 20-ft. bed the weight is 48,000 lbs.; for each additional two feet, 2,000 lbs. extra.

We shall appreciate the opportunity to fully demonstrate to you the merits of this powerful tool, or of any of the New Haven Lathes, which are made in sizes from 18-in. to 65-in. swing. They have behind them an experience of over 60 years and the New Haven Guaranty.

Tell us your needs—single or double back gear—belt or motor drive—anything from 18 to 65-in.—and see what we have to offer.

New Haven Manufacturing Co., - - New Haven, Conn.

"Fox" Lathes

First advertised in 1859.

However good the cut of a tool may be, it cannot illustrate perfection of

Construction;

Personal examination only will show this. Many have become familiar with the valuable

Features

of these lathes with great profit and satisfaction. Those who have not carefully examined them should do so if they have need of a

Brass Finisher's Lathe

A large size cut of a new pattern with 3-inch hollow spindle will be sent on request

THE AMERICAN TOOL & MACHINE CO.
INCORPORATED 1864 BOSTON

A Superior 16-Inch Lathe

15 Feed Changes Instantly Obtainable



Its Adaptability

to the precise requirements of each class of work, and its ease of adjustment to meet those requirements, add to both the convenience and efficiency of this modern tool. The massive headstock; the heavy, well-ribbed carriage; the patent gear feed device; the high-grade construction throughout—these are all described in our circular, which we shall be glad to send you. Your address?

THE VON WYCK MACHINE TOOL CO., Cincinnati, O.

For Strength—Accuracy—Simplicity



16-inch Lathe

Single or Double Back Geared Head Stock—Shifter lever in front for shifting back gears.

Long carriage bearing on bed, with carriage gibbed in front and back.

Compactly designed Quick Change Box, with all steel gears, and only two operating handles to make all changes.

Write for circulars of our 14-in. and 16-in. Lathes

The Conover-Overkamp Machine & Tool Co.
840 Germantown St., Dayton, Ohio, U. S. A.

You Do Not Know

what you have missed if you have
not installed in your shop a

Cisco Lathe

They are money savers, built well,
designed for effective simplicity,
made accurately.

They are moderate in price, but
equal to the higher priced machines
in results.

They are strong, with wide bearings
and generous dimensions.

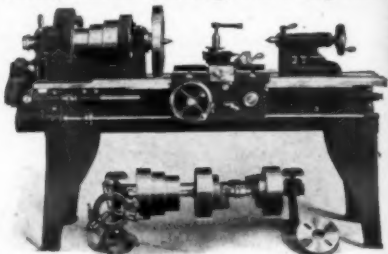
And They are Selling
Have You One?

THE
Cincinnati Iron & Steel Co.
Cincinnati, U. S. A.

Makers of 14-16-18-in. Engine Lathes

A Lathe with Real Features

15-in., with 17-in. Swing, 3 or 4 Step Cone



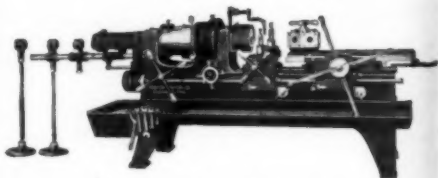
WE INVITE COMPARISON of the practical features of the Robbins Lathe with others of the highest grade. For 27 years we have built good lathes only, and always improving them. They are as near right as lathes are made. Write for full description.

L. ROBBINS MACHINE CO.,

Worcester, Mass.

The "Foster" Screw Machine

With Geared Friction Head

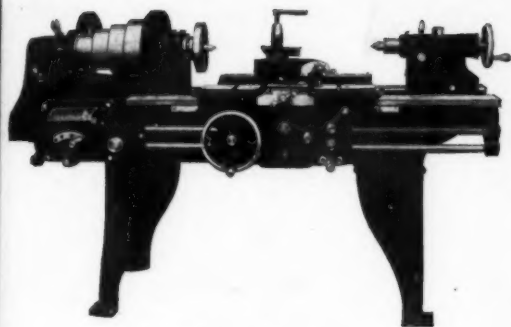


The "Foster" is unexcelled in speed, capacity and convenience for duplicating work within its range, up to 4-in. chuck capacity. Quick change gears to power feed give it four feeds; has independent stop to each hole in turret. Operates equally well in brass or steel. A complete description is yours for the asking.

Foster Machine Company

200 Ward St.,

Elkhart, Ind.



“Morris” Superior Engine Lathes

Have many practical economical features, well worth your investigation.

They are unusually rigid machines, being well braced and having plenty of metal where any strains occur.

The material is of the best and workmanship very accurate. A thorough test is given every machine before leaving our shop

Besides being a modern, cost-reducing, practical type of tool, it is reasonable in price.

Let us quote you on your next requirements. Write for descriptive matter, anyhow—it is worth looking over.

The John B. Morris Machine Tool Co.
Cincinnati, Ohio

Makers also of MORRIS SUPERIOR RADIAL DRILLS

THIS WHEEL
CONTROLS THE
SPEED CHANGES



**Any Speed Over Wide Ranges
Without an Electric Controller**

That's what you're offered in the

RELIANCE

ADJUSTABLE SPEED MOTOR

It is the ideal drive for machine tools. It gives the right speed without current loss for any cut on any material with any tool.

*For details ask for Folder 10-L.
We make Constant Speed Motors also.*

Reliance Electric & Engineering Co.,
1050 Ivanhoe Road, Cleveland, Ohio.



Hardening High-Speed Steel Cutting Tools

Link-Belt Company

Chicago

Harden Tools by Electric Heat

Tools hardened in the Hoskins Electric Furnace do not scale, warp or crack; and they are fifty to several hundred per cent. more efficient than the same tools would be if hardened in the best fuel burning furnaces.

This is because the electric heat of the Hoskins Furnace is free from flame and oxidizing gases; because it can be regulated and maintained with absolute accuracy; and because it heats tools uniformly throughout.

Also, the Hoskins Electric Furnace is by far the most economical in the long run. Let us show you.

For full information, please address Dept. D.

HOSKINS MANUFACTURING COMPANY

Electric—Furnaces, Pyrometers and Heating Appliances
"International" Ammeters and Voltmeters

461 Lawton Avenue, DETROIT

Osin Building
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PITTSBURGH

30 Church St.
NEW YORK



Are You Tired of Paying Big Bills for High Speed Steel?

ARMSTRONG TOOL HOLDERS

Make 1 lb. of Tool Steel go as far as 10 lbs. in Forged Lathe and Planer Tools.

Write for catalog—It tells other advantages

Armstrong Bros. Tool Co., 308 N. Francisco Ave.
CHICAGO.



"The Vital Factor in Cutting"

A new book that will help in solving your cutting troubles

A most interesting treatise on the proper cutting contour and angles for rough turning tools, the correct heat treatment of high speed steel, with a practical table of speeds and feeds for rough turning iron and steel, and other information of practical interest and value.

All without cost

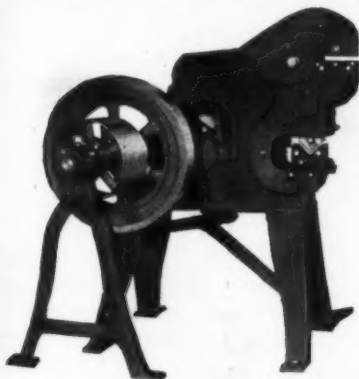
Write today for your *free copy* and mention this special offer. It will be mailed to you promptly.

The Ready Tool Company

40 South Ave., Bridgeport, Conn.

Punches—Shears—Bending Rolls

The Beloit Combined Power Punch and Shear



Built in Five Sizes

Nos. 51, 52, 53, 54 and 55

These machines are very heavy and substantial, and are amply back geared to require only the minimum amount of power, are strong, compact, and easy to operate, and have outer bearing for driving shaft. Can be equipped with angle shearing attachment, architectural jaw or for special work. Furnished for either belt or motor drive.

We manufacture a complete line of punching and shearing machinery in both power and hand tools, also light and heavy duty bending rolls. We do not overrate the capacities of our machines.

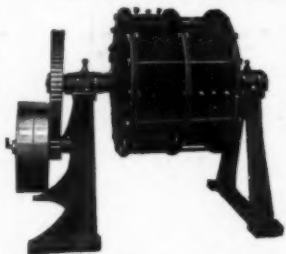
Write for catalogue and prices.

Slater, Marsden & Whittemore Co.

Box 444, Beloit, Wisconsin

Cost Of Burnishing Reduced

Seventy-Five to Ninety-Nine Per Cent



The Abbott Steel Ball Burnishing

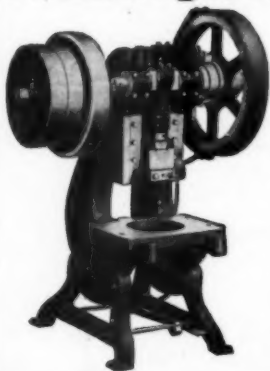
gives better results at an immense saving in cost. Thousands of carbonized steel balls harden and polish the surface of small metal articles without bending, breaking or removing any of the material. Abbott Barrels and Abbott Balls are sold on approval to responsible concerns.

Write for booklet and send samples for burnishing

The Abbott Ball Company

Elmwood District, Hartford, Conn.

Reducing Costs



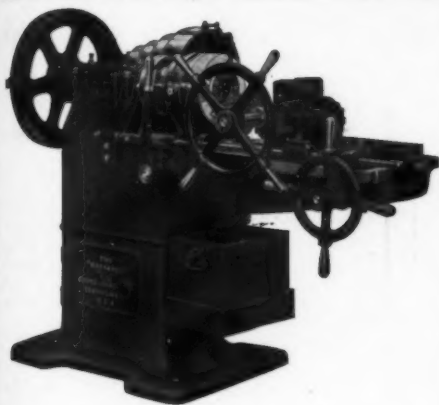
The sure way to increase your profits.

HIGH DUTY
ROCKFORD
PUNCH PRESSES

Not only lower costs but speed up production. Investigate the sure way.

Write today for Catalog

Rockford Iron Wks.
Rockford, Ill.



Reliance Bolt Cutters

Built in sizes $\frac{3}{4}$ inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

The Foote-Burt Co., Makers
Cleveland, Ohio



Terrell's Steel Equipment

It may cost you a trifle more today, but consider what it will save you tomorrow, and next week, and year after year as long as your plant stands.

Floor space costs money—it takes from 20 to 25 per cent less of it to store a given quantity of material with Terrell steel bins and shelves than with the old-fashioned kind.

Insurance also costs money—Terrell equipment costs a handsome percentage of that, besides decreasing the loss you have to carry yourself.

Handling costs less where the Terrell Interchangeable Unit System is installed, because the spaces are so easily increased or diminished in size, that varying quantities are taken care of without trouble, and material is kept neat and compactly stored where access to it is easy.

Let us tell you just how it will save space, time, and money for you. We shall be glad to give you the benefit of our experience.

Steel Lockers

**help make your plant attractive to first-class men—
the sort you want to get and keep**

Wooden cupboards are unsanitary and unsafe, and the self-respecting workman likes a clean, secure place for his effects. He pays to have it for him. Our Steel Lockers protect both you and your employes. They are vermin-proof, fire-proof, theft-proof; and they will furnish satisfactory accommodations for more men in a given space than you can provide in any other way. No room is wasted, and our unit system of construction avoids any loss if occasion arises for moving or rearranging them. They are the right thing for the modern plant.

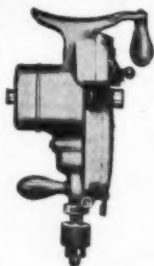
We make them in various styles and sizes, adapted to all requirements, and we sell them so reasonably that the cost is not prohibitive.

*We have some interesting literature about our Steel Lockers
and other equipment that you can have without cost
for the asking. Will you not write for it?*

Terrell's Equipment Company
Hall and Division Sts., Grand Rapids, Mich.



Ready on the Minute—



Emergency jobs are constantly springing up; you need a dependable tool—ready at an instant's notice. Wherever there's an ordinary lamp socket, your machinist can connect up a

TEMCO MODEL B **ELECTRIC** PORTABLE **DRILL**

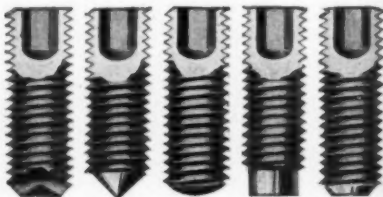
and go to work. He's ready for drilling; ready for tapping; ready for sharpening tools; ready for grinding valves. He takes the tool to the job—not the job to the tool.

Send for our well illustrated catalog

The Temco Electric Motor Co.
55 Sugar St., Leipsic, Ohio, U. S. A.

Attach this ad to your letter-head and mail it in today.

Don't Use Projecting Set Screws Anywhere



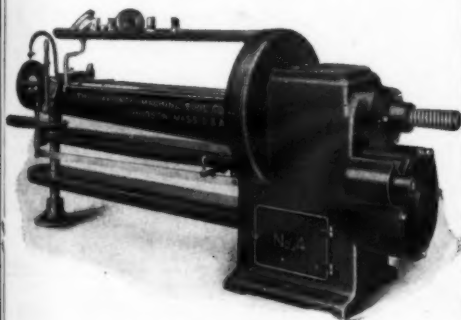
Besides a large line of regular sizes, we make to order promptly set screws of any desired point or thread

Send for Circular No. 13 and sample screw

The Allen Manufacturing Company
Hartford, Conn.

Instant 2-Speed Design
Lapointe Broaching Machine

**With Ball Bearing Thrust and
Ball Bearing Mounted Shafts**



The Lapointe No. 4

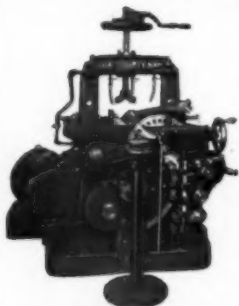
This machine will take care of your heaviest broaching, cutting keyways up to 2-inches and broaching square holes up to $3\frac{1}{2}$ -inches. It is built also in three smaller sizes.

Square, hexagon, octagon, round and irregular-shaped holes, internal spiral grooves, straight and taper keyways, internal ratchets and gears are all cut easily and perfectly on our broaching machines—usually in a few seconds—never requiring more than a few minutes.

When writing for catalog, we shall be glad to have you submit drawings, so that we can show you what we can do for you.

The Lapointe Machine Tool Co.
Hudson, Mass., U. S. A.

Lea-Courtenay



The Lea-Courtenay line of cold metal saws embody several strictly new features well worth investigating by interested parties — one of them described in the chapter entitled "Effective Cutting Range." Our No. 15 machine carrying a 15-inch blade will cut a 5½-inch round bar or a 10-inch I beam.

Get posted on the best Saw

LEA-COURTENAY COMPANY, Inc.
90 West Street, New York

A 12 Inch Saw, \$125.

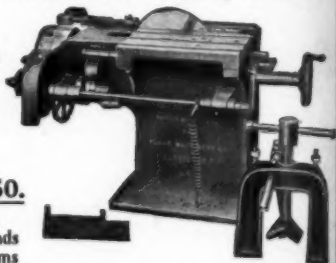
Screw Feed and Ball Bearing Thrust

Cuts 3x5 or
1-2x9 inch.
Power Friction
Feed.

Automatic
Knockout.
Large Clamp-
ing Table.

20 in., \$250.

CAPACITY:
5½ Inch Rounds
12 Inch I Beams



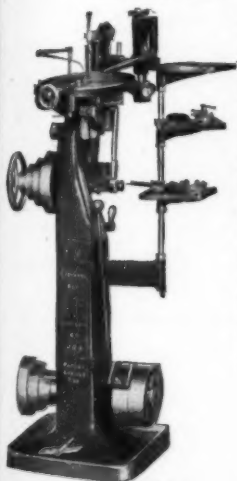
Write for full particulars; they're interesting

The Burke Machine Tool Co.
Conneaut, Ohio

Save Work

With the Cochrane-Bly Filing Machines

Besides a lot of time and money



No. 2 Filing Machine

Several Government Arsenals use these machines, and they are considered indispensable in the hundreds of factories, tool rooms and machine shops in which they have been installed

Accurate filing by hand is difficult for the expert; with this machine it is easy for the novice. The machine is also much quicker, hence accomplishes more at less cost. For dies, metal patterns, jigs, small tools and tool room work generally, the filing machine is so handy and economical that no one who counts the cost of doing things can afford to be without it. Screw feed for the work is provided, and by replacing the file with a hack saw, the machine will saw out dies so closely that but little filing is needed to finish them.



Bench Filing Machine

It is too good a thing to pass by. Write for Booklet and find out all about it.

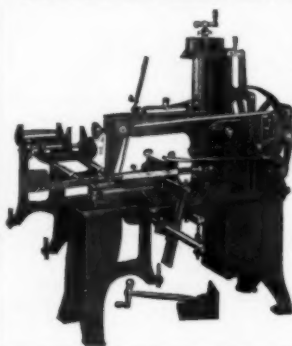
Cochrane-Bly Company

Rochester, N. Y., U. S. A.

Also Cold Saws and Automatic Cold Saw Sharpeners

Economy---Speed

Increased Production at Lower Cost



The Marvel Automatic Saw cuts an entire bar into duplicate pieces at High Speed, without operator's attention.

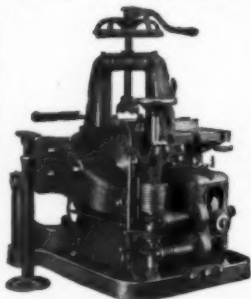
Feeds the Bar

Write Us Today

**Armstrong-Blum
Mfg. Co.**

341 N. Francisco Ave.
CHICAGO

The Lea-Simplex



A Cutting-Off Metal Saw of quality. The machine you saw in operation at the Master Mechanics and Master Car Builders' Convention at Atlantic City.

Ask for Bulletin C.

Lea Equipment Company

Stenton and Wyoming Aves.,

Philadelphia, Pa.

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Why?
If they
them.
you can
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Our Bu
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41



It's the electric way—the rivetless riveter.

Over 50 Stove Manufacturers are using these machines—
Why? Because they can save from 60% to 90% in labor costs.
If they couldn't make money by using them, they wouldn't buy
them. Tell us what you are riveting, and we'll tell you what
you can save. Then we will send you a machine on 30
days' free trial.

Our Bulletin No. 12 tells all about Spot Welders; No. 11
about Butt Welders.

No Lease

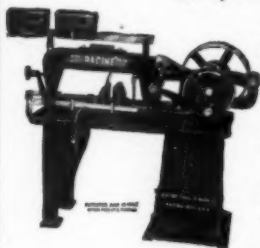
No License

No Royalty

The Toledo Electric Welder Co.

4116 Langland Street, Cincinnati, Ohio

The Racine Tool and Machine Co. will let you use a
Racine High Speed Metal Cutting Machine
 30 days on trial.



If it does not do as much metal cutting as FIVE to TEN ordinary Hack Saws and thereby reduce cutting costs about 500%, you have the privilege of returning the saw at their expense.

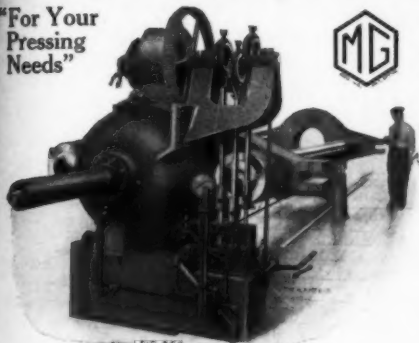
One trial order resulted in the sale of over fifty Racine High Speed Machines to one steel company. The "Racine" is now built in four sizes, viz., 6x6 in., 8x8 in., 12x12 in., and 12x15 in. Don't continue "hacking" your material but saw it off with an up-to-date Racine High Speed.

Write at once to

Racine Tool & Machine Company
 The Junction, Racine, Wis., U. S. A.

Mount Gilead Hydraulic Presses

"For Your
Pressing
Needs"



1000 Ton Hydraulic Forcing Press

This powerful machine was designed for forcing shafts into sugar rolls, but may be used for general machine-shop work. The main pressure ram works through a long and close bearing packed with a U leather packing held in place by a steel gland. Pieces having a diameter as large as 48 inches may be handled between the strain rods.

We are constantly building these presses according to special requirements.

A growing industry is indicative of satisfied customers.

*Let us figure on your forming, forcing,
bending or straightening press.*

The Hydraulic Press Mfg. Co.

72 Lincoln Ave., Mount Gilead, Ohio

Eastern Office:—Rm. 1105 Z, 39-41 Cortlandt St., New York City
Chicago Office:—164 N. Clinton St.

Elastic Rotary Blow Riveter



The Force of the Blow

is regulated at the will of the operator to suit the kind of work being riveted.

Our Riveter is just as efficient on brass or copper as on steel or iron rivets.

Every head is perfect.

Let us rivet up some samples for you!

THE F. B. SHUSTER CO., New Haven, Conn.

Established 1866

Formerly John Adt & Son

Wire Formers for Cotter Pins, Buckle Tongues, etc. Foot Presses, Sprue Cutters.

Appearance Is Everything

Grant Noiseless Riveting Machines

give your product an aristocratic appearance, no hammer or tool marks, nothing but a highly polished rivet head to enhance the looks of your product.

A boy or girl at \$1.00 a day is all that is required to operate the machine with perfect success.

We invite you to send us samples of your work, which we shall rivet and return to you, giving estimate of output and any other information you may desire.

Send for catalog which shows several different sizes and styles of machines for different requirements

The Grant Mfg. & Machine Co.

C. E. Station, Bridgeport, Conn.



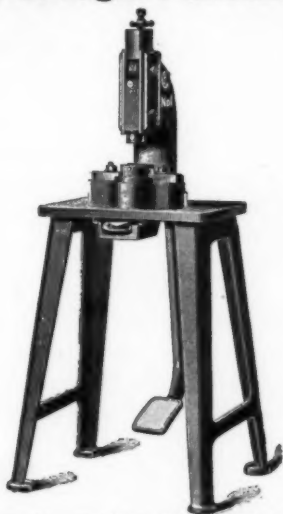
For t
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E.

Bench

No. 1 Tool Press

For Light Punching



For the manufacture of novelties from sheet metal, and for operating a variety of cutting, forming and perforating dies, requiring an accurate press of light power. The machine has exceptional strength and capacity for its size, handling readily punchings up to one inch in No. 16 brass. Carefully adjusted to secure accurate working of the dies and to prevent shearing. Pendulum action of lever gives a stroke of maximum power without fatiguing the operator. Material and workmanship the best. Twenty running in one factory.

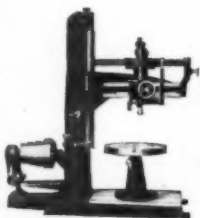
Get the price; you'll like it

E. O. Partridge

2047-9 W. Lake St., CHICAGO

Bench Grinders, Floor Grinders and Tapping Machines

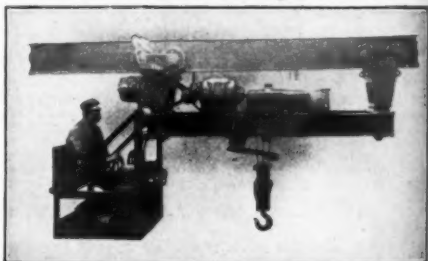
A good Radial Drill must respond immediately—operate quickly—be instantaneous in action—"as the eye is."



The New Gang Radial Drill Catalogue ready for mailing

THE WM. E. GANG CO.
Cincinnati, O.

Mono Rail Hoists and Over Head Track Systems

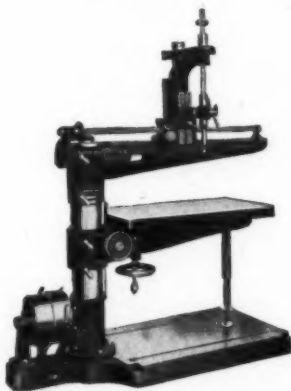


A 5-ton hoist operated from cab or floor for transferring material from one building to another, unloading cars, general yard work, etc. Mono Rail Hoists and trolleys of all types. Nothing too large or too small for our careful, prompt attention.

The Euclid Crane & Hoist Company
Euclid, Ohio

Drilling Time Reduced

The T. & F. does quicker work drilling
small holes in large, cumbersome pieces



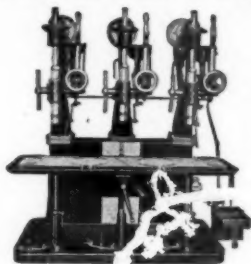
Work handled with difficulty on an ordinary sensitive is drilled with ease on this 3-ft. "sensitive radial." For drilling holes $\frac{3}{4}$ -in. or under it has no equal. Its convenience of adjustment, wide range, quick action, accuracy and power give it a larger productive capacity.

By combining heads of different types on our radial, such operations as drilling and tapping, or drilling and counterboring are accomplished without losing time changing tools and speeds, as is the case with larger types of these machines. On many classes of work this fully equals the actual drilling time.

Let us mail you some cost comparisons

The Taylor & Fenn Company
Hartford, Conn.

Rockford Gangs



They not only drill, but they bore, ream, tap and face without removing work from jig.

Write for descriptive matter

Rockford Drilling Machine Company
Rockford, Ill., U. S. A.

Big Capacity Bench Drill

**Ball Bearing Thrust—
Patent Belt Tightener**



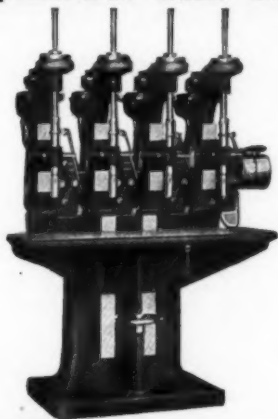
Built upon the principle of our larger sensitives, it marks a step forward in the capacity of bench drills. Table swings around column, tilts to any angle, and has adjustable guage for angular drilling. The forged and ground high carbon steel spindle has ball bearing thrust. The patented belt tightener is also a valuable feature. Furnished with 2-step cone and driving pulleys or 3-step cone and countershaft.

*Write for facts and figures
You'll find them interesting*

ROCKFORD LATHE & DRILL CO.
ROCKFORD, ILL.

No. 105

Independent Unit Control



**KOKOMO
HI-SPEED**

Sensitive Drilling Machine

Each spindle has its own Belt Drive and Geared Speed Box, equipped with high duty Hyatt Roller Bearings.

This gives entirely *Independent Unit Control*, enabling the operator to select either one of four speeds for each of the four spindles, *any speed for any spindle* being obtained without interfering with the operation or speed of the other spindles.

All adjustments and speed changes are made from the front of the machine without wrenches or tools.

Combines highest accuracy with most rapid production. One, two, three and four spindles; drilling capacity, all sizes, up to 1½-inch drills.

Write for Bulletin 160; It gives interesting details.

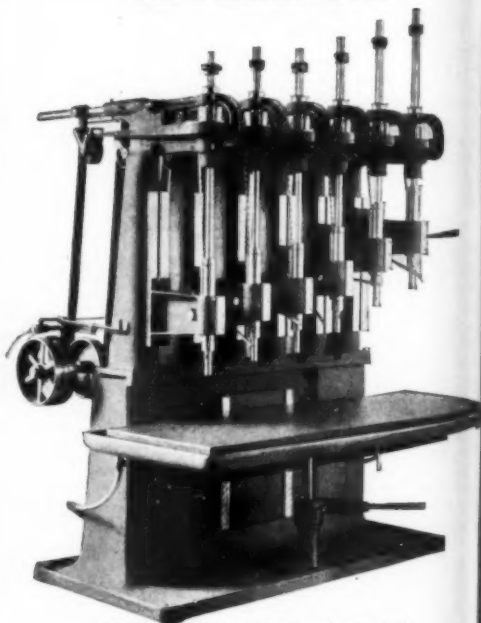
Superior Machine Tool Co.

Kokomo, Indiana, U. S. A.

Manufacturers of the Highest Grade and most complete line of Vertical Drilling Machines in the world.

For Drilling Larger Holes

At Smaller Cost



Using up to 1½-inch Drills

A Strictly Ball Bearing Drilling Machine of the Improved Henry & Wright Model, especially designed for Automobile Manufacturers, and other users of high efficiency drilling equipments.

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Holes Henry & Wright Machines

One to Six Spindles

The principles of design and construction which gave our Sensitive Drilling Machines their splendid records and world-wide reputation are here embodied in heavier machines, which not only include all the patented features peculiar to the Sensitive, but some new ideas which add greatly to their practical value. The extremely wide range which they cover, including holes from 1½-inch down to the smallest sizes, and their exceptional economy of time and power, make it possible for them to occupy a field that is far beyond the reach of any one design of plain-bearing machines.

In these new machines the ball bearings are interchangeable and renewable at the lower end of the spindle pulley, instead of the upper, and are encased in a cup which excludes dust and retains oil, while the spindle pulley itself is supported both above and below the belt, relieving the spindle from belt-pull, and insuring accuracy at the drill point; the spindle sleeve has an inserted steel rack, and adjustable stops are furnished for accurate drilling or counterboring to a specified depth; idler pulleys are balanced and fitted with a guide to prevent belt slipping off in changing speeds.

The machines are entirely belt driven, and are made with from one to six spindles, and in three overhangs, 8, 12 and 15 inches. Spindles are driven with a 1¾-inch belt, and the rear shaft with one 2½ inches wide, the latter being designed to furnish sufficient power to enable two operators to work on the same machine when desired.

It is so good a proposition all through that you will be glad to study it in detail. Write for a complete description, which we will send without obligation.

Have you one of our Drilling Charts? If not, let us mail you one with our compliments.

The Henry & Wright Mfg. Co.
760 Windsor St., Hartford, Conn.

Mechanics' 23-In. Drill

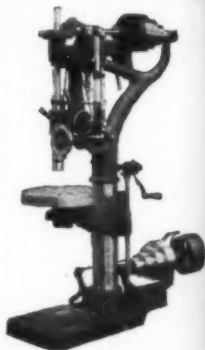
**Lever, wheel and positive feed.
Back gear, automatic stop, etc.**

Here is a sturdy, hustling drill that we recommend for its practical, handy features, and for its endurance and capacity. As in all Mechanics' Drills, especial attention has been given to the design and construction of all parts subject to wear or strain, to make it as nearly a perfect tool as possible.

Write for Catalog

of the Mechanics' Line, including our 14 to 36-in. Standard Uprights; 2, 3, 4, 5 and 6-spindle Gang Drills, and our Friction Bench Drills.

**Mechanics' Machine Co.
Rockford, Ill.**



20" Power Drills

**Made in
Eight Styles**

Round or Square Base

LEVER FEED

LEVER and WHEEL FEED

**POWER FEED and Automatic
Stop**

**POWER FEED with Back Gears
and Automatic Stop**

Send for catalog



Fig.
862

**The Silver Mfg. Co., 385 Broadway
SALEM, OHIO**

Drill



lls



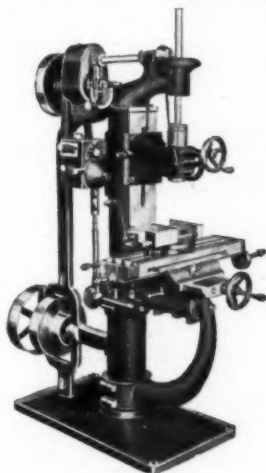
Fig.
862



roadway
I, OHIO

Saves Tool Room Labor

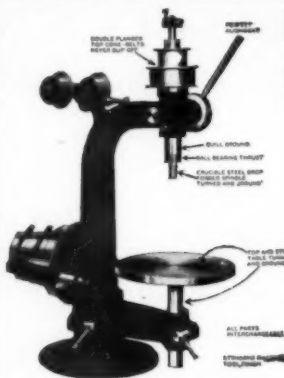
The Knight No. 2 has the convenience and capacity of two or three separate machines



IF YOU COULD SEE it in operation on dies, jigs and hard machining of all kinds—boring, milling and drilling at a saving of 20 to 50 per cent of time—you would understand our customers' enthusiasm about this cost reducer, which we make in three sizes.

Send for circular containing pictures of this machine on various difficult jobs—all pointers for the practical mechanic.

W. B. Knight Machinery Co.
St. Louis, Mo.



Burke Quality Excels on Fine Points

To get the
Burke

quality, be sure
that the name
and address
(Conneaut, O.)
are cast on the
frame of the
machine.

For Sale Everywhere

High Grade Spindle Drills

At the Following Net Prices

2-Spindle, No. 320, \$116.

3 " No. 330, \$158.

4 " No. 340, \$196.

Simple--Substantial--Accurate

Overhang, 7-in. Capacity,
 $\frac{5}{8}$ -in. Maximum distance
spindle to table, 30-in.

Write quick for early delivery

Reed Drill Company

43 Hammond St., Worcester, Mass.



Straight from the Shoulder

to the perfectly ground and perfectly tempered tip is every "Detroit" Twist Drill. Straight from the shoulder and perfectly true is every statement we make about them in our advertising.

"Detroit" Twist Drills

run true and are absolutely accurate in size because the body and shank are ground on their centers after hardening. Likewise you'll find the lip angles of every "Detroit" Drill absolutely equal. This means that both lips cut *all* the time.

They insure the greatest economy in all operations where drills are used, and a test will prove it. Send for a trial order today.

**Every one guaranteed.
Look for the trade-mark.**

Catalog "J" is arranged in two colors, black and red, for ready reference. Ask for a copy.

Detroit Twist Drill Company



Improving Twist Drills Since 1886
510-522 Fort Street, Detroit

**30 Church St.
New York**

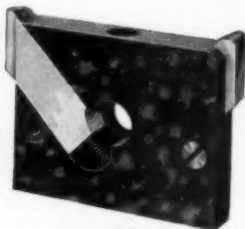


**633 Market St.
Philadelphia**





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Some **KELLY** "Points"

They last a lifetime, "Save" first piece reamed
Continue to save money

The "big fellows" are doing so now

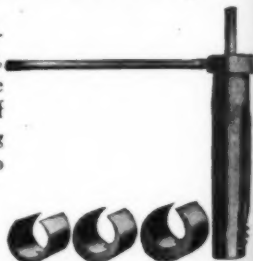
Our 48-Page Catalog may start you into Modern Methods. Ask for it!

THE KELLY REAMER CO., - Cleveland, Ohio

London Sidney New York Detroit Boston

KEYWAYS cut on the drill press

Internal keyways, either straight or taper, are cut perfectly on the drill press by means of a high speed milling cutter in holes 5-8 to 12-in. diameter.



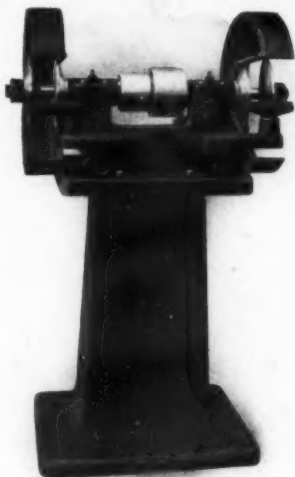
Over 3000 in use.

Get Booklet O and prices

National Machine Tool Co.

2270 Spring Grove Ave., Cincinnati, Ohio

No. 6 Blount Grinder



For wheels 18-in.x3-in.x1½-in.

Distance between wheels	24"
Length of bearings	8"
Diameter of spindle in bearings	1½"
Diameter of spindle between flanges	1½"
Size of spindle cone pulley	5" and 6" x 4½"
Height from floor to center of spindle	35"
Weight, complete, about	500 lbs.

This is only one of our seven sizes of grinders, one of which will surely meet your requirements.

Ask your dealer about our machines, or write for catalogue No. 14, which describes our entire line of grinders, buffs, and speed lathes.

J. G. BLOUNT CO., Everett, Mass.



Safety—Safety—Safety

A safe grinder is a good thing. But when the very feature that makes it safe also adds materially to its efficiency as a grinder, then it is too good to be overlooked. The

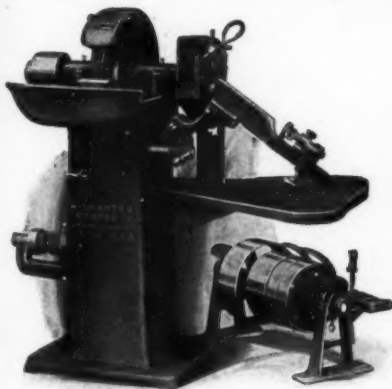
Ransom Motor Driven Grinder With Ransom Patent Speed Controller

is just that kind of a grinder. The automatic action of the speed controller causes it to drive emery wheels of all diameters at the same periphery speed—just right for the best grinding results all the time, whether the wheel be new or worn down, and never too fast for safety.

Free Bulletin No. 9 describes all sizes

Ransom Manufacturing Company
Oshkosh, Wis.

Two Machines For One Price



One floor space, one power bill and one upkeep expense are other advantages given with

No Disadvantages.

Either part of the machine can be used without interfering with the other, and both can be used at the same time. Each is complete in itself, efficient, well made. If you have a drill grinder, the water tool grinder can be furnished plain.

Plain NEW YANKEE Drill Grinders furnished in a multitude of sizes if you are not interested in the tool grinder.

We also make Drill Grinders or Plain Tool Grinders, Surface Grinders, Cutter Grinders, Center Grinders, etc.

Ask for catalog

Wilmarth & Morman Co.

1185 Monroe Ave., Grand Rapids, Mich.



Working Surface of Table 50" x 11½" Range 28" x 8" x 19" All feeds

ON EACH SIDE
FOR STIFFENING
ARM

PROVIDED
QUICK RETURN

ALL FEEDS
AUTOMATIC

REVERSE LEVER

All feeds automatic

New Rockford Miller Single Pulley Drive

Heaviest Cuts can be taken, with spindle running at maximum speed, without slipping of belt. The use of change gears to secure the 16 spindle speeds enables us to provide a single drive pulley of extra large diameter.

Exceptional Rigidity is secured by patented flange support to the 4-inch solid steel overhanging arm, insuring greater accuracy and larger capacity.

All Attachments are fastened to seat of column, and their location above main spindle permits an unusually wide range under them.

Hyatt Roller Bearings, which are self-oiling, eliminate wear and the possibility of hot journals.

Furnished with constant speed pulley drive, constant speed motor drive or variable speed motor drive.

*A good miller to know
Write for an introduction*

The Rockford Milling Machine Co.
Rockford, Illinois

The Geometric Self-Opening and Adjustable Screw-Cutting Die Head



(Style "D")

The Die Head in general use on Turret Lathes and Screw Machines.

The Die Head that your neighbor is using for the production of accurate *Screw Threads*.

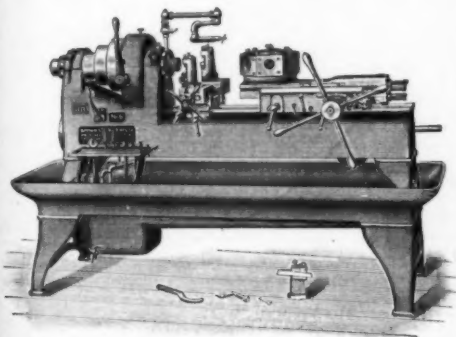
The Die Head that saves time and prevents waste of material.

Made in sizes from 5-16-in. to 4½-in. For cutting any diameter, length or pitch of thread.

Send for our Style "D" Catalogue

The Geometric Tool Company
New Haven, Conn.

Chucking and turning of forgings, castings, and large pieces cut from the bar, can be done accurately and profitably on these machines.



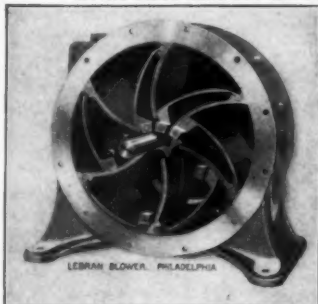
No. 6 Plain Screw Machine

We build them in three sizes, the largest of which is shown above. Send for a copy of our general catalogue giving specifications of all our screw machines and other machine tools.

Brown & Sharpe Mfg. Co.
Providence, R. I., U. S. A.

Positive Pressure Blowers and Vacuum Pumps Patented

In all sizes and for all services



LEBRAN BLOWER. PHILADELPHIA

**"Built
Like A
Machine
Tool"**

—
Quiet
Durable
Efficient
—

Write for data

THE LEBRAN CO., 940 N. 9th St., Phila., Pa.

Forging With A Blower

Can best be done where the pressure is steady. The gas, oil or coal may be of the best, but without the proper temperature efficient work is impossible.

**LEIMAN BROS.
Rotary High Pressure
BLOWERS**

are especially adapted for forging. They last practically a life-time as they take up their own wear.



Get Catalog No. 26

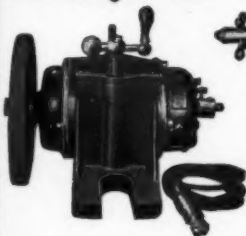
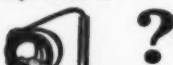
Leiman Bros., 62R John St., New York



Electric Air Cooled Drills

Are Best by Test

Are You Still Paying Two
or three prices for a job
just because you have al-
ways done so



The fact that the U. S.
Government tests prove they
are superior in every respect
should be convincing evidence
to all users of this type of tool.

Aside From This

there's the evidence of thousands of users all over the United
States. Would they use them if they were not the best? Hardly.

Want a Catalogue? A Postal will bring it.

We use aluminum for Casing on all Drills to cut down weight
Power from any Lamp Socket

SENT ON TRIAL ANYWHERE

*Made for alternating or direct current
Just attach it to your nearest lamp socket*

The United States Electrical Tool Co.
Cincinnati, Ohio

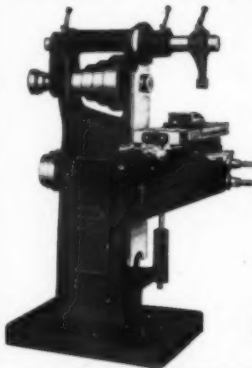
NEW YORK, 50 Church St.

BOSTON, 12 Pearl St.

CHICAGO, 8 E. Michigan St.

PHILADELPHIA, Heed Bldg., No. 1211 Filbert St.

A New Rockford Miller



With Power and Hand Horizontal Feed

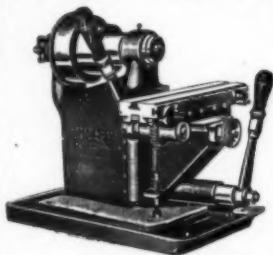
Rigid, accurate and well proportioned, this miller is especially designed for light manufacturing. Note stiffness afforded overhanging arm by flanged support.

**Range of feeds,
22" x 6½" x 15"**

We solicit your inquiry

**Rockford Milling Mche. Co.
Rockford, Ill.**

Just The Machine



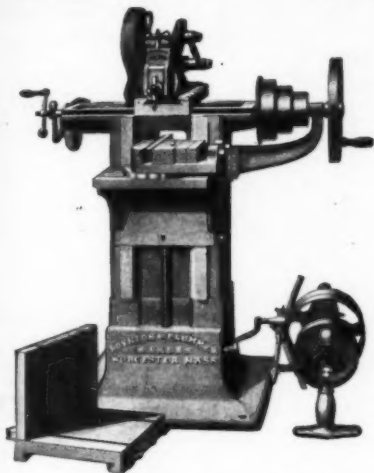
for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

Send for descriptive Circular

**The Carter & Hakes Co.
West Winsted, Conn., U. S. A.**

AGENTS—Marshall & Huschart Mchry. Co., Chicago, St. Louis, Indianapolis; Motch & Merryweather Mchry. Co., Cleveland, Detroit, Cincinnati, Pittsburg.

SPECIAL 6x9 Shaper, 14-in. traverse,
with swivel and plain chucks
that take work full length of
traverse, and countershaft. **\$160**

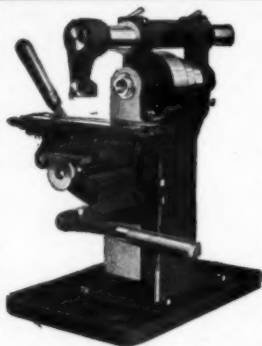


**6x9, 8x12 and 10x15-Inch
Improved Shaping Machines**

The capacity of our improved machines has been increased at least one-half. The feed is automatic and reversible. The cutter-bar has a graduated swivel head. They will prove particularly profitable where much short work is now being done by filing and planing, often saving the room and expense of a large planer. A large opening in the machine permits the insertion of long work, such as shafts for keyseating, etc.

Write for Shaper Catalog, also separate Catalog of Post Drills, Bolt Cutters, Bending Machinery and Nut Tappers.

**Boynton & Plummer, Inc.,
Worcester, Mass.**



Burke's No. 3 Bench Millers Are Seasoned Tools

Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.; traverse feed, $3\frac{1}{4}$ in.; vertical motion of knee, $8\frac{1}{4}$ in.; table surface, $3\frac{1}{2} \times 12$ inch.

Write for Catalog, which also shows larger and smaller sizes.

The Burke Machine Tool Co.
Conneaut, Ohio

Here's A Good Thing

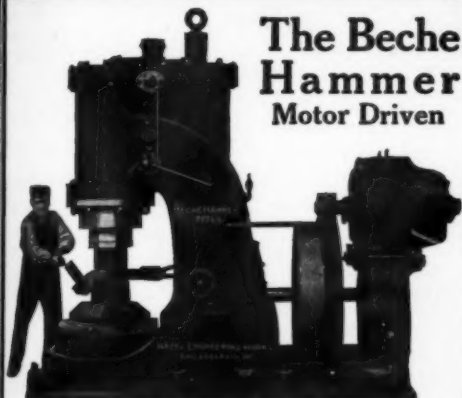
Make your own Soft Metal Hammers and Vise Jaws. Or let a Boy do it.



With this combined ladle and mould, you have only to place the handle in the mould, heat the metal in the ladle, tip the latter back slightly so that it will run into the mould, and your hammer is ready for use. The handle is merely a piece of pipe of suitable length, forged to form a T-shaped end. We have a similar mould for vise jaws also. Handles and metal may be used over and over again.

A big-little economy that is worth while—write for more particulars

CHAS. H. FIELD, * Providence, R. I., U. S. A.



**The Heaviest, Most Powerful, Efficient
and Economical Hammer of Its
Size on the Market.**

*Hammer and Compressor Combined, No Piston
Rods, Springs, Straps or Cushions.*

Simple—Durable—Reliable

Powerful, non-bounding, squeezing blow. Positive, flexible control. Long stroke. Variable blows at will. No adjustments. Dies at any angle. Belt drive, no countershaft. Motor drive, geared direct.

Sizes and Normal Capacities of Beche Hammers

66 lb.	165 lb.	250 lb.	350 lb.	500 lb.	770 lb.
2" dia.	4" dia.	5" dia.	7" dia.	8" dia.	9" dia.

Write for Catalogue and Prices

Nazel Engineering & Machine Works

Sole Builders for United States and Canada

5th and Luzerne Sts. - - Philadelphia, Pa.

Why have more than **150,000**
Jacobs Improved Drill Chucks
been purchased in ten years? **Why**
were **2,620 Jacobs Improved Drill**
Chucks purchased during April, 1913
—more than in any other month of our
phenomenally successful career?



There can be but one reason, and
the answer is—**Because** users of Drill
Chucks prefer the **Jacobs Improved**
Drill Chuck.

*Our 34-page illustrated catalogue H
sent upon request.*

The Jacobs Manufacturing Co.

32 Union Place, Hartford, Conn., U.S.A.

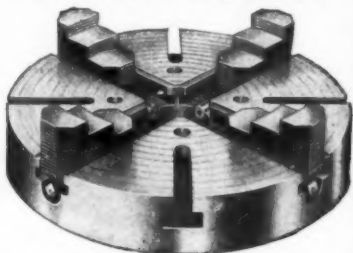


ated with the thumb and forefinger sufficiently to set the jaws down on to the drill, and then start drilling. The pressure of the drill on the work causes the jaws to tighten on the drill, and there is no chance for a slipping drill. And the harder the pressure on the drill, the tighter the grip of the jaws. The jaws can be instantly released, no wrench being required.

Try one and be convinced

Union Manufacturing Co.
26 Cortlandt St., New York New Britain, Conn.

The Solving of Chucking Problems
Is Our Special Line of Work



There is a Sweetland Chuck for All Your Chuck Needs

Just tell your chucking troubles to

THE HOGGSON & PETTIS MFG. CO., New Haven, Conn.

YOU'LL Find It
"Worth Many Times Its Cost"

WHY does the Lagonda Mfg. Co., Springfield, O., say, *"We would not be without it for many times its cost"?*



Because

It saves their men on heavy lifts; saves them time, money, labor and drudgery; increases their facilities for handling work, and insures absolute safety to men and machines.

"Handiest Tool in the Shop" Portable Crane and Hoist.

It will do this for you.

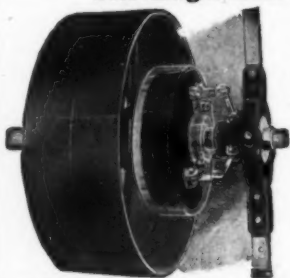
Really, you must use the tool to thoroughly appreciate what it means to you in your shop.

Write today for booklet E-8; we'll tell you **how** and **why** you're losing money without it.

Don't delay; it's costing you too much.

The Canton Foundry & Machine Co.
Canton, Ohio

Pulls All That A Belt Will *The Edgemont Clutch*



No springs or delicate parts; operates quietly; releases instantly; has plenty of adjustment for wear, and will stand the hardest usage—even abuse. Fully protected against dust and dirt. Used on machine tools and other machinery where compactness, power and dependability are prime essentials.

The Edgemont line is shown in Catalogue E, covering regular and special clutches for all transmission purposes. Consult us about your clutch problem; we may help you.

The Edgemont Machine Co.
National Ave. & Neilbert St., Dayton, O.



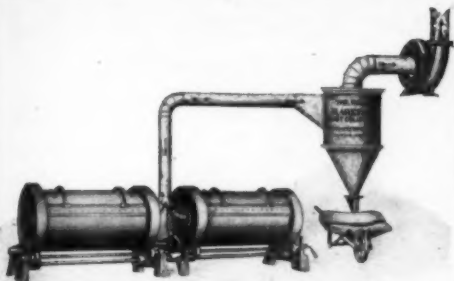
Durant Counters on Stamping Presses

Screw Machines and in dozens of other applications *Earn* their *Cost Monthly*.

Write us about your counting troubles. We'll solve them.

New Catalog No. 19 for the asking.

THE W. N. DURANT CO., Milwaukee, Wis.



First Choice of Big Firms

The Morse Rarefied Collector is giving satisfaction
with all kinds of serious dust problems

The air is *drawn* in, and the dust is collected and automatically discharged before the air reaches the fan. There is no abrasion of fan parts, very little wear from internal friction, and no cleaning out by hand.

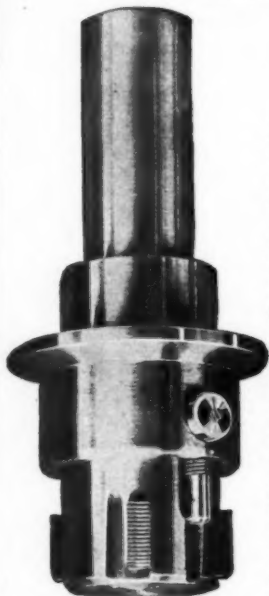
Plants having large quantities of dust to handle—whether it be from emery wheels, sand blasts, tumbling barrels or polishing wheels, or grain dust from receiving hoppers, boots, legs and bins—all find that the Morse gives constant, efficient service at lower cost.

*Let us send you a list of firms who are using the
Morse Rarefied with profit and satisfaction*

The Knickerbocker Company
Jackson, Mich.

Save One-Half and More

In Your Tapping Work



Sliding Collar Type

out thoroughly, for efficiency and time saving. If not all we claim, return in 10 days at our expense. You take no chances and the results will surprise you.

The risk is ours; the greatest profit is yours

Murchey Machine & Tool Company

56 Porter St., Detroit, Mich.

The Murchey Collapsing Taps

(1-in. to 12-in.)

Save 50 to 75 per cent and give increased efficiency.

Save reversing, and make stripping impossible.

Adapted to all kinds of tapping machines, drill presses, monitor machines, boring mills and turret lathes.

Shanks made to fit any style machine without extra cost.

Taps are adjustable, for maintaining exact standard sizes.

Sold on 10 days' approval, and backed by our unqualified guaranty.

Send us blue prints or samples of work, with your order for a Murchey Collapsing Tap. Try it

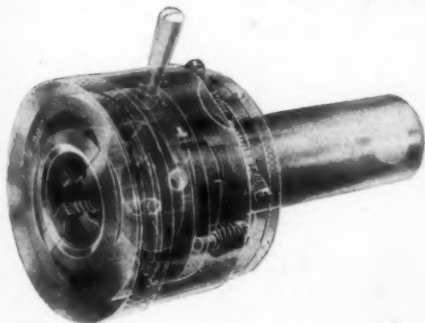
Are you using the most improved Type of Automatic Threading Die? If not, get in line and use

New Model Type A

Ideal Opening Die

Simple construction—Few Parts—and impossible to get tapered thread

Let us know your wants. Write for information regarding Die.



This Die does not depend on any springs for opening. As soon as Clutch is disengaged the cutting strain opens Die.

Pity the man you can't persuade

That the world has moved in the last decade,

Who dwells in the Province of Long Ago,

With makeshifts and crotchets and methods slow,

Forgetting the things that he abuses

Are those his successful competitor uses;

He rails at progress with narrow mind

And marvels much that he falls behind.

Manufactured By

The Ideal Tool & Mfg. Co.

Office and Factory, BEAVER FALLS, PA.



Vulcanized Fibre For Machine Parts

INVESTIGATE—TODAY—
its low cost and high efficiency for
your machine parts. You will
find it both better and cheaper.

Let us figure on these parts for your machines:

Gears
Frictions
Washers

Bushings
Thrust Washers
Guide Collars

Discs
Handles
Etc., Etc.

Or send us blue prints or samples of special parts.

Write for Catalog, which tells the story of the original Vulcanized Fibre and its uses, and contains price list on stock parts, sheets, tubes and rods.

American Vulcanized Fibre Co., Wilmington, Delaware.

Steel Handles



Ball Crank, Compound Rest, Two-
Ball Lever and Machine Handles

They are accurate, highly finished, and ready to attach. Made as a specialty, and sold below the manufacturing cost of cast iron or forged handles because of quantity production.

We can save you money

Write for Catalog of Standard Handles, prices and discount

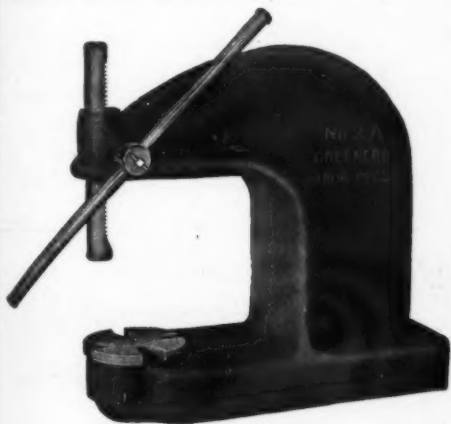
The Cincinnati Ball Crank Co.
Oakley, Cincinnati, Ohio



Today's Foresight

Is Better than Tomorrow's Regrets

You are bound to find out some day what a convenience the Greenerd is, how it saves time, material and delays, and how little it costs. There can be no regrets if you order today—on approval, if you wish—that's fair enough.

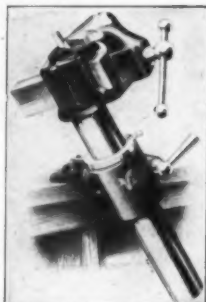


Greenerd Arbor Presses

are made in numerous styles and sizes, up to 25 tons pressure, for driving arbors, crank pins, bushings, etc., and are used for broaching, punching, bending with dies, and 99 other purposes. You need them—today—tomorrow. Inquire of your dealer or write direct to

Edwin E. Bartlett,
336 A Street, Boston, U. S. A.

The Victor Swiveling Vise



Sold on Approval

It's Handy: Entirely universal, it sets instantly in any position, one lever locking all swivels.

It's Rigid: Doesn't rattle or jump under chipping or hammering, and swivels never wear loose.

It's Economical: Enables the vise hand to do more and better work. He can stand in a natural position and keep work turned to the light.

Write for full description and special approval offer

VICTOR VISE COMPANY
Springfield, Ohio

Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels
" No. 0 32 " "
" No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table
" No. 9 Tilting Table
" No. 10

Boring attachment if wanted.



Jointers

8 in., 5 and 6 ft. tables and guard.
12, 16, 20, 24 and 30 in., 7 ft. tables and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

Chicago Machinery Exchange

1214-1228 Washington Boulevard Chicago



JUNK

**Men do not get the caps
Of Tucker's Positive Lock
Compression Grease Cups
They Won't Jar Off**

For Automobiles and all kinds of machinery having excessive vibration. Cup member has internally milled threads to gauge limits, ensuring interchangeability. We are prepared to furnish the cup part in pressed sheet brass in the following sizes:

$\frac{3}{4}$ in., 1 in., and $1\frac{1}{2}$ in., all 24 pitch thread.

Complete	{	No. 000	{	$\frac{3}{4}$ in. pipe shank
Cups		No. 00		1 in. pipe shank
		No. 0		$1\frac{1}{2}$ in. pipe shank

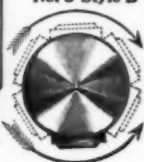
PATENTED JANUARY 11, 1910

Tucker's Oil Hole Covers



Style C, Self Closing

No. 5 Style B



Self Closing



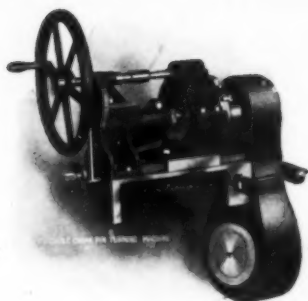
Style A

Note the indent of ball valve on styles B & C



Send for Catalogue of full line of Covers
for all kinds of machinery having oil holes

W. C. & F. C. Tucker, Hartford, Conn.



Does Accurate Work in Place

Underwood Crank Pin Turner and Reborer

If you are not yet acquainted with the great economy our line of Portables puts within your reach, the big saving in time and costs afforded by this machine will be a revelation to you.

It has the accuracy and is built with the care of a machine tool. Four set screws center it true with the pin in the same manner as a lathe chuck, assuring perfect alignment. The feed is reversible while the machine is running. A range of variable feeds can be quickly obtained. The cutting tools are carried in a patent holder that grips them firmly. Your choice of four sizes.

*Get acquainted with our line of Portables.
Our Catalog gives many valuable pointers.*

H. B. Underwood & Company
1022 Buttonwood St., Philadelphia, Pa.

Lists
under th
with a n
the na
Prices
parties
slip inch

210-211

Here are

6' Niles
two p

30' Pit la

40' span

W. L. P.

10"x 6"
10"x 8"
10"x 8"
8"x12"

10" Walc
10" Smith
3" Gould
2"x20"x

Boring m
Miller, ve
Miller, v
Miller, pl
Miller, h

Girard M

For Sal
Power Co

6"x12" P
and gea
8"x12" P
3"x12" B
2"x10" R
4"x12" R

Garvin, W

Boring m
horizont
Drill pres
Gear shap
Milling m
Thom ma

Second-Hand Machinery.

Lists of second-hand machinery, either for sale or wanted, will be published under this heading at the rate of **40 cents a line**, across the page, each issue, with a minimum charge of **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. Prices and full descriptions of the machines listed will be furnished by the parties offering them for sale. If you do not find what you require, use the slip inclosed with each book to make known your wants to the publisher.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

210-212 Washington Ave.,

St. Louis, Mo.

Here are three exceptional bargains:

CYLINDER BORING MACHINE.

4' Niles horiz. Corliss engine cylinder boring machine for boring cylinder, two ports and facing both ends of cylinders at one setting and operation.

BORING AND TURNING LATHE.

20' Pit lathe for boring and turning fly-wheels, band wheels and rope wheels.

ELECTRIC CRANE.

4' span 25-ton electric traveling crane. three motors, 220 volts, d. c.

FOR SALE BY

W. L. Perkins Machinery Co.

30 Church St., New York

LATHES.

14"x 6' American, c. r., taper.

18"x 8' Reed, comp. rest, hol. spdl.

18"x 8' Pond, compound rest.

8"x12' LeBlond, c. r., hol. spindle.

24"x 8' Harrington, compound rest.

28"x16' New Haven, c. r., hol. spdl.

30"x15' Sellers, compound rest.

32"x12' Fitchburg, compound rest.

SHAPERS AND PLANERS.

14" Walcott geared shaper.

10" Smith & Mills crank shapers.

20" Gould & E. b. g. crank shaper.

20"x20"x 3' New Haven planer.

25"x25"x56" Sellers planer.

32"x32"x 8' Pond planer.

36"x36"x26" Miles planer.

12" Sellers slotter, all feeds.

MISCELLANEOUS.

Boring mill, hor., No. 2 Bemen.

Miller, vert., No. 4 Becker-Brainard.

Miller, vert., No. 4B Becker-B.

Miller, plain, No. 24 B. & S.

Miller, hand, No. 2 P. & W.

Miller, hand, No. 6 Whitney.

Nut tapper, 5 spindle P. & W.

Nut tapper, 6-spindle Acme.

Radial drill, 3' Gang.

Screw mche., 4 sp., 8" Hartford auto.

FOR SALE BY

Girard Machine & Tool Co., 491 North Third St., Philadelphia, Pa.

For Sale:—The machinery of the United States Standard Gas & Electric Power Co.:

LATHES.

6"x12' Putnam engine lathe, t. r.

and geared face plate.

8"x12' Pond, geared face plate.

8"x12' Blaisdell.

20"x16' Reed.

24"x12' Reed.

24"x12' Lodge & Shipley.

20"x 8' Reed.

18"x 8' Reed.

18"x 8' Prentice.

16"x 6' Prentice.

TURRET LATHES AND SCREW MACHINES.

Garin, Warner & Swasey, Cleveland Automatic, Davis chucking lathes.

MISCELLANEOUS.

Boring mills, Bullard, Niles, Baugh,

horizontal and vertical.

Drill presses.

Gear shapers, Fellows.

Milling machines.

Milling machines, vertical.

Planers, all sizes.

Punch presses.

Radial drills, 5' Prentice.

Steam hammers.

These machines are all modern and late type. Send for list and our prices.

SECOND-HAND MACHINERY

FOR SALE BY

C. C. Wormer Mach'ry Co., 94-96 W. Woodbridge St., Detroit, Mich.

Send for our No. 97 Catalog.

PRESSES.

No. 83-C Michigan geared. (2).
No. 80 Perkins o. b. i.
No. 103 Consolidated o. b. i.
No. 14½ Stiles & Parker sq. horn.
No. 31 Toledo.

No. 53 Fowler.
No. 2 Stiles & Parker.
No. 5 Eaton, open back.
No. 195 o. b. i., power.
No. 34 Greenerd arbor press.

MILLING MACHINES.

No. 2 Cincinnati universal,
No. 1 Cincinnati plain.
No. 1 Grand Rapids plain.
No. 2 Davis & Egan plain.

No. 3 Fox, hand & power.
No. 1 Knight Improved.
No. 59 Bement & Dougherty, plain.
No. 218 Bement & Sons, plain.

TURRET MACHINES.

19"x6" LeBlond combination.
24" Davis boring and forming.
21"x7" Lodge & Davis chucking.
20"x8" Star Tool Co. chucking.
No. 1 American sq. arbor Fox.
No. 2 American universal.

16"x5" Universal Fox.
16"x6" American Fox.
16"x6" Bardons & Oliver.
15" Prentiss square arbor Fox.
No. 1 Warner & Swasey universal.

SCREW MACHINES.

No. 3 Foster geared fric. head.
No. 1 Brown & Sharpe, semi-auto.
No. 2 Brown & Sharpe, automatic.
No. 1 Pratt & Whitney.

1" Cleveland automatic, (2).
1" Cleveland automatic, (2).
1" Cleveland automatic.
No. 3 Hartford automatic.

PLANERS.

30x30x10" American 4-head.
31x31x10" Brettell 1-head.
30x30x14" Miles 2-head.
24x24x 7" New Haven.
16 ft. Niles open end.

24x24x 6" Hendy.
24x24x 6" Flather.
20x20x 4" Wheeler.
20x19x 4" New Haven.
22x22x 5" Pond.

LATHES.

26"x16" Schumacher & Boye.
28"x10" Hamilton.
28"x12" New Haven.
22"x16" Putnam.
22"x 8" Fifeild.
21"x10" Bradford.
21"x11" Lodge & Davis.
18"x 7 6" New Haven.
18"x 9 4" New Haven.
18"x 8" New Haven.
18"x 8" W. P. Davis.

18"x 8 6" American.
18"x10" Prentiss.
18"x 8 6" Walcott & Wood.
18"x 8" Lodge & Davis.
18"x 8" Whitcomb.
18"x 6" Lodge & Davis.
18"x 6" Jones & Lamson.
16"x 6" Flather.
16"x 6" Pratt & Whitney.
16"x 8" Perkins.
15"x 6" Flather.

GRINDERS.

No. 14 Modern plain.
No. 12 Modern plain.
No. 4 Diamond double end.
No. 2 Diamond wet tool.

No. 70 Heald, internal.
No. 1 Yankee.
No. 24 Landis, crank.
No. 64 Diamond wet tool.

MISCELLANEOUS.

Bar folder, 21" Niagara.
Bolt cutter, cap. to 1½". No. 12 Wells.
Boring mill, 30 in. Bullard.
Boring mill, 34 in. King.
Cold saw, No. 4 Cochrane-Bly.
Cold saw, No. 5 Cochrane-Bly.
Crimping machine, No. 1 Bliss.
Cutting-off mch., No. 4 Hurlbut & R.
Former and bender, No. 2 Bliss.
Gear cutters, No. 11 Dwight-Slate.
Gear hobber, No. 1 Farwell, auto.
Gear shaper, 36 in. Fellows.
Groover, 36" Bigelow "Giant."
Groover, 36" Niagara.
Hack saw, No. 1 Sterling.
Hack saw, No. 3 Sterling.

Hammer, 75 lb. Bradley, upr. stmp.
Hammer, 90 lb. Justice, power.
Hammer, 125 lb. Bradley, upr. stmp.
Hammer, 400 lb. Erie, steam.
Hammer, No. 3 Bell, steam.
Pipe folder, 30" Niagara.
Pipe machine, ¾" to 2" No. 1 Ages.
Pipe machine, ¾" to 3" No. 7 Jarecki.
Pipe mche., 2½" to 6" No. 110 Forbes.
Shaper, geared, 15" Hendey.
Shaper, crank, 16 in. Kelly.
Shaper, crank, 16" Smith & Mills.
Speed lathe, 11"x4" Blount.
Tapper, 5-16" cap., Brown & Sharpe.
Tapping machine, No. 1 Garvin.
Wiring machine, No. 526 P. S. & W.

Joseph

Item.

H 167

H1004

H 767

H1058

H 804

H1027

H 947

H1029

H 948

H 975

H 989

H 624

H 864

H 892

H 992

H1050

H 889

H 812

H 811

H1013

H 982

H 791

H 900

H 605

H 981

H 904

H 665

H 636

H 658

H1066

H 956

H 655

H 735

H 744

H 914

H 975

H 765

H 584

H1067

H 733

H 918

H 919

H 913

H 926

H 672

H 913

H1010

H 900

H 787

H 208

H1065

H1061

H 620

SECOND-HAND MACHINERY

FOR SALE BY

Joseph T. Ryerson & Son, - 16th and Rockwell Sts., Chicago

PLANERS.

Item.			
H 167	Sellers, 42x42x6 $\frac{1}{2}$, 2 heads.	H 169	Sellers, 42x42x8 $\frac{1}{2}$, 2 heads.
H 1044	Hamilton 36x36x10.	H 946	Lodge & D. 36x36x8, 2 hds.

LATHES.

H 767	11x3 $\frac{1}{2}$, speed.	H 997	American, 18 $\frac{1}{2}$ x10, q. c. g.
H 1058	Lodge & Shipley, 14x6 g. h.	H 1028	Hamilton, 19x10, q. c. g.
H 804	LeBlond, 14x8.	H 859	Flather, 24x10, q. c. g.
H 1027	Flather, 17x8, q. c. g.	H 945	New Haven, 28x24.
H 947	Schumacher & Boye, 18x6.	H 838	Putnam, 32x16.
H 1029	Whitcomb-Blaisdell, 18x8.	H 919	Niles 50" pulley lathe.
H 948	American, 18x10.		

DRILLS.

H 975	Worcester 13" sensitive.	H 995	Cincinnati 24" tp'g. att.
H 993	Prentice 24" tapping att.	H 517	Snyder, 25 in. adj. head.
H 624	Foot-Burt No. 1, 6-sp.	H 916	Lodge & D., 32 in., adj. hd.
H 864	Quint 6 spindle turret head.	H 1037	Sibley, 34", fr. hd.
H 892	Cincinnati 20 in. lever feed.	H 926	Niles 4 ft. radial.
H 992	Rockford 24" tp'g. att.	H 991	Baker No. 1, high speed.

GRINDERS.

H 1050	Blount 16" wet tool grinder.		
H 899	Yankee style B. capacity $\frac{1}{2}$ to 2 $\frac{1}{2}$ " drills.		
H 812	Landis No. 1 universal, range 9x24.		
H 811	Brown & Sharpe No. 3 cutter and reamer grinder.		
H 1013	Dayton universal cutter grinder.		
H 1030	Ingersoll 24" inserted tooth cutter.		
H 992	Cincinnati No. 2 universal tool grinder with 220 v., d. c. motor.		
H 791	Valley City No. 9, disc and surface grinder.		
H 999	Gisholt universal tool grinder.		

PNEUMATIC TOOLS.

H 605	Albree riveter, 26 in. reach, capacity 1 in. rivets.
H 901	Sturtevant 38" blower, 14" square discharge.
H 994	Root No. 1, positive pressure blower.

MILLING MACHINES.

H 665	Ingersoll, slab 36x36x8.	H 860	Kempsmith No. 8 univ.
H 636	Garvin No. 4 plain, 3 feeds.	H 737	Kempsmith No. 2 plain.
H 639	Lincoln type, 6x26 in.	H 964	Osterlein plain, 34x9x19.
H 1066	Becker No. 5B, plain.	H 657	Lincoln type 6"x32".

TURRET MACHINERY.

H 958	Cleveland $\frac{1}{2}$ in. automatic screw machine.
H 635	Pratt & Whitney $\frac{1}{2}$ in. hand screw machine.
H 735	Wells No. 140, $\frac{1}{2}$ in. hand screw machine.
H 744	Springfield Fox 18x6, turret on bed.
H 914	Conradson 24-32 turret lathe.
H 875	Garvin No. 1, $\frac{1}{2}$ " hand screw machine.
H 265	Bardons & Oliver, 13" hand screw machine.
H 804	Pratt & Whitney No. 2, $\frac{1}{2}$ " hand screw machine.

MISCELLANEOUS.

H 1067	Bevel shears, Wangler, $\frac{1}{4}$ " capacity.
H 723	Boring mill, Baush, 32", turret head.
H 918	Boring mill, 50 in. Niles, 2 heads.
H 918	Boring and drilling machine, Niles No. 2 $\frac{1}{2}$ N.
H 713	Boring and drilling machine, hor., 4x27x60 in., Beaman & Smith.
H 828	Crane, hand power, 5 ton capacity, 15 ft. span.
H 672	Cutting-off machine, 3 in. Hurlburt & Rogers.
H 913	Cut-off saw, No. 3-B., capacity 20 in. beams.
H 1040	Hammer, American, 25 lb. steam post.
H 900	Hammer, steam, 400 lb. Chambersburg.
H 787	Jointer, Towsley 12".
H 296	Profiling machine, No. 2 Pratt & Whitney.
H 1063	Punch, Whiting, 15" throat, capacity $\frac{1}{4}$ "x $\frac{1}{4}$ ".
H 1061	Shaper, Milwaukee 24" crank.
H 628	Tapping machine, No. 1 Garvin automatic.

SECOND-HAND MACHINERY

FOR SALE BY

Niles-Bement-Pond Company, 111 Broadway, New York

Located at Chicago, Boston and New York.

Send for Catalogue No. 18.

LATHES.

- | | |
|----------------------------------|--|
| 13x6 P. & W., r. & f., taper. | 22x22 Niles. |
| 14x5 American, brass, Fox att. | 26x12 Pond, comp. rest. |
| 15x7 speed lathe. | 28x12 Pond, compound rest. |
| 16x6 Pratt & Whitney geared head | 30x14 Niles, c. r. |
| tool room lathe. | 32x12 Pond, compound rest. |
| 16x10 P. & W., r. & f. & t. | 36x17 Pond, 220 v. motor drive, tape. |
| 18x6 Pond, turret tool post. | 36x18 Bement, comp. r., tri. grd. |
| 18x7 Pond, turret tool post. | 36x28 Bement, comp. r., tri. grd. |
| 18x8 Flather, quick change. | 40x16 Bement, b.g., not screw cutting. |
| 19x8 Pond, compound rest. | 42x22 Niles, comp. r., tri. grd. |
| 20x10 Flather, c. r. | 42x30 Putnam, comp. r., tri. grd. |
| 22x12 Niles, with taper. | 44 in. P. & W. pulley lathe. |

SCREW MACHINES, TURRET LATHES, ETC.

- | | |
|--|---|
| 14x5 American, square arbor. | 4 in. Hartford automatic pin machine. |
| 14 in. B. & O. hand screw mch. | 4 in. P. & W. automatic screw machine. |
| No. 3, 2 1/2-16 in. Niles screw mche. | 4 in. P. & W. 2 sp. automatic screw machine. |
| 2x24 Jones & Lamson. | 4 in. Acme old style 4-sp. automatic. |
| 3x36 New Model P. & W. | 4 in. single turret Spencer automatic. |
| 21 in. Gisholt, turret. | 21-32 in. No. 2 Brown & Sharpe automatic screw machine. |
| 24-27 Conradson semi-automatic turret, 2 3/8-16 in. hol. sp. | |
| 28 in. Milwaukee turret, 4 1/2 in. hol. sp. | |

BORING MACHINES.

- | | |
|--|--|
| 30 in. tur. hd. b. & t. mill, Colburn. | 24 in. sp. Bement hor. bor. & drill. |
| 50 in. Niles pulley borer. | 4 in. sp. Betts, hor. bor. & drill. |
| 7 ft. Pond b. & t., 2 heads. | 96 in. swing x 10 ft. centers bor. & drilling; weight: about 43,000 lbs. |
| 8 ft. Pond b. & t., 2 heads. | |
| 2 in. sp. Kelly hor. bor. and drill. | |

UPRIGHT AND SENSITIVE DRILLS.

- | | |
|--|---|
| 13 in. 1 sp. sensitive, motor d., 110 v. | 36 in. sliding head, Gould & E. |
| 10 in. 2 sp. sensitive, Slate. | 3 sp. Niles rail drill, arrgd. for motor. |
| 10 in. 3 sp. sensitive, Slate. | 4 spindle Bement, multiple, 11 in. between housings. |
| 10 in. 3 sp. sensitive, Signourney. | No. 11 multiple drill, P. & W. |
| 14 in. 4 spindle, style A, Barr. | 10 sp. adjustable R. & W. capacity. |
| 2 spindle dbl. column sen., Langelier. | 1 1/2 in. holes in 37 in. circles, best motor; weight: 30,000 pounds. |
| 17 in. 4 sp. gang, Jones & L. | |
| 20 in. No. 23 Foote Burt high duty. | |
| 30 in. sli. head, Gould & Eberhardt. | |

RADIAL DRILLS.

- | | |
|-----------------------------------|-------------------------------------|
| 2 1/2 ft. semi-radial, Hiles & J. | 5 ft. plain, motor, Pond. |
| 4 1/2 ft. semi-radial, Barr. | 5 ft. 6 in. universal, Niles. |
| 4 ft. Niles, plain. | 6 ft. 10 in. semi-universal, Niles. |
| 4 ft. Niles, univ. | 7 ft. 6 in. full universal, Niles. |
| 5 ft. Niles, plain. | Univ. portable radial, Prentice. |

MILLERS AND GEAR CUTTERS.

- | | |
|---|------------------------------------|
| No. 1 Duplex Van Norman. | P. & W. spline miller. |
| 24x7 table, plain, Becker. | 6x14 thread miller, P. & W. |
| 43x9 1/2 No. 3 Cincinnati plain, b. g. | 6x30 thread miller, P. & W. |
| No. 13 single spindle new model profiler, P. & W. | 36" spur and bevel, Gould & E. |
| Single sp. profiler, 21x24 in. table. | 36 in. spur gears, Pond. |
| Garvin. | 48 in. spur gears, Brown & Sharpe. |
| | 72 in. spur gears, Niles. |

SHAPERS AND SLOTS.

- | | |
|---|---------------------------------------|
| 10 in. crank shaper, P. & W. | 18 in. double trav. head, Cincinnati. |
| 10 in. crank shaper, Miles. | 32 in. triple grd. rack, Cincinnati. |
| 12 in. crank shaper, Bement. | 12 in. crank slotter, Bement. |
| 20" Bement, 220 v. motor, traveling head, like new. | 14 in. crank slotter, Niles. |
| | 18 in. crank slotter, Bement. |

RAILROAD MACHINERY.

- | | |
|---------------------------------|--------------------------------------|
| 46 in. car wheel lathe, Bement. | Bement double axle lathe. |
| Niles double axle lathe. | Putnam double axle lathe, ex. heavy. |

SECOND-HAND MACHINERY

Niles-Bement-Pond Company—Continued.

PLANERS.

24x24x6 Harrington.
24x24x6 Powell.
24x24x7 Niles, heavy type.
24x24x16 Miles, 2 hds.
24x24x6 Pond, 1 hd.
24x24x24 Sellers, 2 hds.
24x24x14 Pond, 2 hds.
24x24x8 Niles, 1 head.
24x24x20 Pond, 3 hds.

42x42x12 Woodward & P., 4 hds.
42x42x20 Miles, 3 hds.
48x48x16 Pond, 4 hds., heavy, 220 v. motor.
48x48x20 Sellers, 3 hds.
48x48x34 Pond Wks., N-B-P, 4 hds.
50x50x18 Gleason, 2 hds.
72x60x20 Niles, 2 hds.
86x86x35 Pond, 4 hds.

MISCELLANEOUS.

Bar cut-off saw, 22" diam. blade.
Bending and straightening machine, horizontal, for 10 to 15 in. beams and channels.
Cut-off machine, 24 in. P. & W.
Cut-off machine, 42 in. Starr.
Engine, 28 Watertown.
Grinder, drill, 3 in. Sellers.

Grinder, plain, 5x32 in. Landis.
Grinder, univ., 10x30 Landis.
Grinder, 12x96 in. Springfield.
Grinder, tool, Gisholt.
Saw grinder, automatic.
Spring wind and cut-off machine, auto., for springs 7-32x1 in. long to 1 in. long, 1-16 in. between coils.

FOR SALE BY

The Osborne & Sexton Machinery Co., . . . Columbus, Ohio.

LATHES.

1x1 complete, regular equipment.
12x3 South Bend, h. s., cp. rest.
1x6 Blaisdell, hollow spindle.
20x8 Bridgeport, h. s., cp. r., taper.

20 in. Bridgeport turret, pr. fd.
20x12 Fifield, comp. rest. (2).
20x12 Hamilton, h. s., c. r., taper.
48x22 Gleason, 40 in. raised.

PLANERS AND SHAPERS.

14 in. Steptoe.
16 in. Gould & Eberhardt.

24x24x6 Gray.
48x48x20 Belmar, 4 heads.

MISCELLANEOUS.

Boring mill, 50 in. Niles.
Cold saw, 22 in. Lucas.
Drills, 22, 24 and 30 in. Hamilton.
Drill, 4 sp. Niles, 2 in. capacity.
Gas engines, 10, 15, 25, 40 & 60 h. p.
Gas furnaces, Chicago. (2).
Hammers, drop, 300, 750 and 3,000 lbs.
Hammers, helve, Schatz & Dayton.

Millers, power, small, B. & S., (2).
Miller, Lincoln, P. & W.
Miller, plain, Grand Rapids No. 1.
Rolls, Toledo shovel blanking.
Screw mchs. B. & S. auto., (3).
Shaper, draw cut, 30 in. Morton.
Slotter, 10 in. New Haven.
Threading mches., Webster & P., (2).

FOR SALE BY

The Randle Machinery Co., . . . 1739 Powers St., Cincinnati, O.

ENGINE LATHES.

18 in. x8 ft. McFarlan.
18 in. x8 ft. Steptoe.
17 in. x12 ft. Greaves-Klusman.
Lathes complete with face plates, chuck, countershafts and all parts.

PLANERS.

36x36x8 ft. Oesterlein, with countershaft and all tools.

BOILERS.

Horiz. tubular, from 36 to 150 h. p.
Fire box, from 8 to 150 h. p.
Vertical, from 3 to 50 h. p.

MISCELLANEOUS.

Heaters, tanks, pumps, electrical, saw mill and general machinery, including a complete line of Iron Working Tools.

Also a full assortment of new machinery.
Sole manufacturers of the celebrated "Leader" Injectors and Jet Pumps.

MOTORS.

All sizes and kinds.
GAS & GASOLINE ENGINES.
25 h. p. Dean.
8 h. p. Springfield.

ENGINES.

Corliss, from 50 to 650 h. p.
Automatic, from 15 to 350 h. p.
Throttling, from 5 to 200 h. p.
ELECTRIC GENERATORS.
3½ to 300 k. w., belted and direct connected, alternating and direct current, with switchboards.

SECOND-HAND MACHINERY

FOR SALE BY

The Lake Erie Machinery & Supply Co., (Machinery Dept.)

408-412 Frankfort Ave., N. W.

Cleveland, Ohio

Revised list of Second Hand Machinery at reduced prices. Write for prices.

LATHES.

9"x4' with chuck, c. s. or foot pwr.
14"x 6' Bradford, h. s., c. r., chuck.
16"x 5' I. Johnson, taper att.
18"x 6' Blaisdell, tur. on carriage.
18"x 8' Bradford, hol. spdl. c. r.
19"x 6' Blaisdell, b. g., p. r., tap. att.
20"x 8' Walcott, qk. chg. feed (new).
24"x26' New Haven.
24"x28' Bradford shaft lathe, h. s., c. r.
34"x22' Enterprise.
50"x15' bull lathe.

88"x20' Niles bull lathe.
12"x14' speed lathes with c. s. (6).
36" raised to 42"x25', c. r., sol. sp.
13"x 6' Ames Mfg. Co.
30"x18' Lowell steady and follow.
32"x12' Prentice q. c., c. r. hol. sp.
16"x 6' Blaisdell hollow spindle.
11"x 4' Star screw cutting.
14"x 8' New H., solid sp. steady.
36"x22' Sellers dbl.-bk. geared c. s.
40" Kilby pulley lathe.

TURRET LATHES & SCREW MACHINES.

15"x 6' American bk. grd. Fox lathe.
16"x 6' Lodge & B. b. g. Fox lathe.
24" W. & S. Monitor turret lathe.
9"x18' Potter & Johnson auto pwr.
fd. turret chucks 4 1/2" hol. spindle.

No. 2 Pratt & W. plain turret lathe.
No. 00 Brown & Sharpe auto.
1" Cleveland automatic.
14" Pratt & Whitney turret lathe.
13" No. 2 Warner & S. turret lathe.

SHAPERS.

12" Schuchardt & Schutte, bench.
16" Barker, back geared crank, new.
16" Smith & Mills, back grd. crank.

14" Steptoe plain crank.
16" Hendy geared shaper.
24" Smith & Mills triple geared.

DRILLS.

10" Allen sensitive drill press.
No. 1 Burke, bench, with Jacobs ck.
21" Lodge & Davis, sliding head.
34" Prentice, sliding head, complete.
30" Midland high speed radial.
No. 1 Prentice Bros. radial, 4' arm.
13" Dwight Slate 4-spdl. sensi. (2).
No. 2 Garvin, 3-spindle gang. (2).

No. 4 Garvin, 4-spindle gang.
21" Hoefer 6-spindle, complete.
Gardam, multiple spindle.
Foote-Burt, multiple spindle.
20" Canedy-Otto drill press.
16" Henry & Wright drill press.
28" Pratt & W. upright drill press.
15" sensitive drill press.

MILLING MACHINES.

No. 13 Garvin, plain (2).
No. 2 Pratt & Whitney plain.

No. 3 Kempsmith, plain.

PRESSES.

No. 19 Bliss, special open back.
No. 71 Bliss st. side plain.
No. 52 Bliss st. side plain.
G. A. Crosby punch press plain.
No. 3 G. A. Crosby open back punch
press plain.
No. 7 Niagara, plain, o. b. i.

No. 21 Bliss, o. b. i. punch pr., (6).
No. 31 Bliss o. b' punch press.
No. 2 Style D Ferracute agl. acting
re-drawing press.
No. 3 Type D. G. Ferracute geared
single acting re-drawing press.

NUT TAPPERS AND BOLT CUTTERS.

1 1/2" Acme sgl. spdl. nut tapper, cks.

3" Reliance bolt cutter.

PLANERS.

48"x48"x20' Belmar, 4 heads.
40"x40"x10' Steptoe-McFarland.
36"x36"x 9' New Haven, one head.

17"x17"x18" Whitcomb, crank.
16"x16"x24" Belden, 1 head.
24"x24"x 7' Powell, spur gd. planer.

GRINDERS.

No. 1 Thompson univ., motor drive.
24" Barnes, wet tool.

24" Leland, wet tool.
16"x24" Iroquois plain grinder.

ENGINES.

3 h. p. Fairbanks-Morse gas engine.
8 h. p. Buckeye gasoline, hopper
cooled, new.
6 h. p. gas engine.
15 h. p. Kenton gas engine.

15 h. p. Fairbanks-Morse gas engine.
150 h. p. Taylor engine.
4 h. p. Gathe gas engine.
8 h. p. upright steam engine.

WOODWORKING MACHINERY.

Wood top American saw table, 12"
saw, c. s.
20"x8' wood turning lathe.

Beach iron frame, iron top tilting
saw table.

SECOND-HAND MACHINERY

The Lake Erie Machinery & Supply Co.,—Continued.

ELECTRICAL EQUIPMENT.

- | | |
|---|---|
| 24 h. p. Lincoln d. c. motor 220 v. | 25 h. p. Fairbanks-Morse d. c. motor 220 v., 1,025 r. p. m. |
| 3 h. p. Fairbanks-Morse a. c. 110 v. | 5 h. p. Peerless d. c. motor 220 v., 1,485 r. p. m. |
| 24 k. w. Triumph d. c. generator 125 v. | 24 h. p. Akron d. c. motor, 220 v., 1,500 r. p. m. |
| 25 k. w. Triumph d. c. generator with switchboard 125 v. | 5 h. p. Peerless d. c. motor, 220 v., 1,500 r. p. m. |
| 20 k. w. Hobart generator d. c. 125 v. | 5 h. p. Bullock motors d. c., 110 v. |
| 20 k. w. Westinghouse a. c. generator 1,100 v. | 5 h. p. Peerless d. c. motor, 220 v., 1,500 r. p. m. |
| 10 h. p. Fairbanks-Morse d. c. motor, 220 v. | 60 h. p. Fairbanks-Morse d. c. motor 220 v., 750 r. p. m. |
| 45 k. w. G. E. generator, 220 v. | 30 h. p. Westinghouse interpole motor, 220 v., 1,700 r. p. m. |
| 40 h. p. Westinghouse d. c. motor, 220 v., 875 r. p. m. | |
| 20 h. p. Fairbanks-Morse d. c. motor 220 v., 1,300 r. p. m. | |

MISCELLANEOUS.

- | | |
|-------------------------------------|---|
| Blower, No. 8 Sturtevant Monogram. | Keyseater, No. 6 Morton, 4 cutters. |
| Boring bars, (9). | Magnet wind'g lathe, dbl. high-spd. |
| Boring mill, vert., No. 2 American. | Muffle furnace, No. 3 Stewart. |
| Cold saw, 21" Lucas & Gleim. | Pipe threader, 4" Wells Mche. Co. |
| Crane, 6 ton, with runway. | Pump, power, Humphries, new. |
| Emery wheel stand and c. s. | Punch and shear, hand lever. |
| Exhauster, No. 3 Champion, new. | Punch press and shear, gap combination, 4" Keene. |
| Exhauster, 22" Root. | Shear, hand lever. |
| Exhauster, 30" Root. | Slotter, 12", vertical. |
| Hack saw, 6" Challenge. | Swing cut-off saw, 54" for 16" saw. |
| Hack saw, No. 7 Atkins Kwik Kut. | Shear, alligator. |
| Hammer, helve, Rochester "A". | Welder, portable acetylene, No. 5 Economy. |
| Hammer, steam, 500 lb. Bell. | |
| Keyseater, No. 2 Davis. | |

FOR SALE BY

Brown-McDonald Machinery Co.,

904-908-910 North Market Street, . . . St. Louis, Mo.

BLOWERS.

11 Blowers, all sizes, including 2 No. 7 Roots rotary.

COMPRESSORS.

6 Laidlaw-Dunn-G., horiz., steam. 8x8 Curtis, vertical, belt driven.

DRILLS.

1" Snyder, b. g., p. f., (2). No. 33 Reed, 3 spindle sensitive.
2" Barnes, b. g., p. f., with tap. att. No. 34 Reed, 4 spindle sensitive.

GRINDERS.

10 Emery grinders, all sizes.

LATHES.

14" x 6' Porter. 16" x 6' Hamilton.
14" x 6" & 18" New Monarch, (8). 17" x 8' Fifeild.
14" x 6' Rockford, comp. rest, hol- 5 speed lathes.
low spindle, new.

MILLING MACHINES.

No. 10 Kempsmith, plain. Cincinnati slab milling and boring machine.
No. 4 Becker-Brainard.

PIPE MACHINES.

4" Curtis & Curtis, power. 24" power.

PUNCH & SHEAR.

No. 6 Long & Allstatter, cap. 1/2 in. alligator pattern

SHEARS.

4" power shear. 37" Acme, foot pow

MISCELLANEOUS.

Power, horiz., Mch. Sales Co. Gear cutter, Brainard.

Shaper, H" Steptoe.

Large stock of Engines, Boilers, Wood Working Machinery, Pulleys, Shafting, Belting, etc. Can fill all requirements. Write us.

SECOND-HAND MACHINERY

FOR SALE BY

O. L. Packard Machinery Co.,

Milwaukee, Wis.

LATHES.

14"x 6' Blaisdell lathe, solid spindle.....	\$ 105.
14"x 6' Flather, hollow spindle.....	20.
14"x 6' Hamilton, c. r., power cross feed, hollow spindle.....	25.
18"x 6' American, compound rest, hollow spindle.....	25.
24"x12' Blaisdell lathe.....	30.
24"x12' Aldrich & Calver lathe.....	20.
28"x20' Harris lathe.....	30.
16" turret lathe.....	10.
18" Lodge turret lathe, power feed.....	15.
1" screw machine, Dreses, nearly new.....	25.

MISCELLANEOUS.

Pipe machine, No. 8 Merrill.....	\$ 25.
Planer, 25"x25"x16' Fitchburg.....	45.
Screw machine, 4" Pratt & Whitney.....	55.
Shaper, 2 spindle, wood top.....	30.
Shaper, No. 24 Clement, wood top.....	15.
Shaper, Indiana, 2 spindle, no table.....	2.

FOR SALE BY

A. D. White Machinery Co.,

108-114 N. Jefferson St., Chicago

LATHES.

13x5 P. & W., taper and chucks.	18x8 American, latest pat.
14x5 Reed, taper, 2 chucks.	18x10 Schumacher & B., 16 in. ck.
14x6 Porter, compound rest.	24x10 Lodge & Shipley, qk. change.
16x6 Flather, 2 chucks.	28x14 Fifield.
18x8 Schellenbach, q. change.	32x14 Porter, 20 in. chuck.

DRILLS.

18 in. Blaisdell.	32 in. Bickford, sliding head.
28 in. Bickford, sliding head, (4).	40 in. Aurora radial.
30 in. Kerkhoff, sliding head.	3 ft. Bickford radial, cheap.
30 in. Bickford, sliding head.	

PLANERS.

24x 6 Pond, 1 head.	32x 8 Betts, 1 head.
25x 6 Sellers, spiral drive.	36x12 Cincinnati, 2 heads.
26x 6 Gray, 1 head.	38x10 Gray, 1 head, fine.
26x 8 Gray, 1 head (2).	52x25 Betts, 1 head.
28x 8 Gray, 1 head (2).	

SCREW MACHINES AND TURRET LATHES.

16 in. No. 3 Pearson screw machine.	3 in. P. & W., automatic.
No. 24 Pratt & Whitney sc. mach.	No. 6-A Potter & Johnston.
4 in. Cleveland, automatic.	21 in. Gisholt, rapid traverse.
2 in. Pratt & Whitney, automatic (4).	24 in. Gisholt, rapid traverse.

PUNCH PRESSES.

No. 2 Ferracute, (3).	No. 5 Niagara, inclinable.
No. 3 Ferracute, double action.	No. 754 Bliss, 4 in. stroke.
No. 16 Walsh, inclinable, (2).	No. 31 Walsh, gap.
No. 19 Bliss, inclinable.	No. 15 Waterbury, geared.
No. 21 Bliss inclinable.	

MISCELLANEOUS.

Boring and facing machine, No. 1 Beaman.	Keyseater, No. 2 Catlin.
Grinder, cutter, H. G. Barr.	Miller, No. 9 Kempsmith.
Hammer, power, 35 lb. Justice.	Miller, No. 12 Garvin, (3).
Hammer, 40 lb. Bradley, helve.	Riveters, 3-16 in. Adt.
Blowers, No. 4 Garden City, (2).	Shaper, 14 in. P. & W., univ. vice.
Hammer, steam drop, 5000 lb. Erie.	Shapers, 16 in. Smith & Mills.

Did you get our new "Yellow Book"?

SECOND-HAND MACHINERY

FOR SALE BY

Prentiss Tool & Supply Co., New York, Boston, Buffalo, Syracuse.

BORING MILLS.

3" bar Bement, horizontal.
2 spindle Foote-Burt, cylinder.
1" Lucas, horizontal.

34" King, vertical.
42" Rogers, vertical, two heads.
42" Colburn, 2 heads.

DRILLS.

4" Gang, plain radial.
8" and 60" Bickford pl. radials.
8" and 34" Barnes sliding head.
1-spindle 20" Barnes, gang.
3" Cincinnati, sliding head.

Style F Baker Bros., heavy.
7-spindle Slate, gang.
Foote-Burt, high speed.
6-spindle Gardam, multiple.
4 spindle Moline.

GRINDERS.

Pratt & Whitney, vertical surface.
Walker, automatic surface.
No. 11 Landis, plain.

No. 2 Osterlein, cutter.
No. 6 Rivett, internal.
Nos. 60, 70 and 210 Heald.

MILLERS.

Nos. 1, 2, 3 & 4 Cincinnati, universal.
No. 5H Becker, horizontal.
No. 3 Brown & Sharpe, vertical.
No. 4 Becker, Lincoln.

No. 3 Owen, plain.
No. 12 Brown & Sharpe, plain.
8' Beaman & Smith, planer type.
No. 24 Brown & Sharpe, plain.

LATHES.

12" x 4' Hendey, r. & f.
12" x 16" and 18" Lodge & Shipley.
12" x 3' Hendey, c. r.
8" x 16" Reed, c. r., p. c. f.
8" x 8' Hendey, c. r., p. c. f.
8" x 15' Bradford, c. r., p. c. f.
8" x 14' Flather, c. r., p. c. f., taper.
3" x 10' Draper, c. r., p. c. f.
2" x 10' Bullard, c. r., p. c. f.
3" x 12' Putnam, c. r., p. c. f.
3" x 12' Reed, c. r., p. c. f.
8" x 18' Pond, c. r., p. c. f.

72" x 12' Pratt & Whitney, c. r., p. f. c.
36" x 15' Lathe & Morse, c. r., p. c. f.
38" x 20' Fay & Scott, c. r., p. c. f.
40" x 18' Newark, c. r., p. c. f.
50" x 16' Stone lathe.
84" x 20' Fitchburg, triple geared.
16-32" x 8' Fay & Scott, gap.
20-42" x 12' Fay & Scott, gap.
32" x 18' column facing lathe.
16" x 10' automatic threading.
60" Stevens, pulley.
11" x 4' Wells, speed.
14" x 5' American, Fox.

PLANERS.

15" x 3' Pratt & Whitney.
3" x 24" x 6' Wilson, 1 head.
3" x 24" x 6' Cincinnati, motor drive.
3" x 30" x 10' Bement, 2 heads.
8" x 36" x 12' Lodge & Davis.
8" x 42" x 14' Pond, 2 heads.

42" x 36" x 10' Hamilton.
42" x 42" x 14' Woodward & P., 4 hds.
52" x 42" x 12' Cincinnati.
60" x 60" x 15' Sellers.
71" x 60" x 14' Pond.
88" x 72" x 33' Pond, 2 heads.

HAMMERS.

5 lb. Dupont, trip.
5 lb. Bradley, trip.

40 lb., helve, 300 lb. W. & W. drop.
1000 lb. Pratt & Whitney, drop.

PRESSES.

No. 10 Bliss, geared.
American Can, adjustable bed.

No. 2 Hibbard, inclineable.
D. G. 74 Ferracute.

SCREW MACHINES.

2" x 24" Jones & Lamson.
12" x 18" Pratt & Whitney.
No. 3 Garvin wire feed, f. b. g.
1" Warner & Swasey, wire feed.
No. 0 Brown & Sharpe, wire feed.
No. 2 Pratt & Whitney, wire feed.

24" American, heavy.
22" Libby, heavy type.
2" Pratt & Whitney, wire feed.
1" and 1 1/2" Hartford.
1" Pratt & Whitney, auto.
1" Brown & Sharpe, auto.

SHAPERS.

12" Lodge & Davis, crank.
8" Gould & Eberhardt, motor.

20" Kelley, crank.

MISCELLANEOUS.

Automatic pinion cutter, Slate.
Bending rolls, 8", 4" cap.
Cold saw, 9" Espen Lucas.
Dynamometer, 40 h. p. Sprague.
Gas engine, 6 h. p. Otto.
Gear cutters, 24", 48" & 64" G. & E.
Gear hobber, 24" x 12" G. & E.

Pipe machine, 3" Jarecki.
Plate planer, 19".
Riveter, No. 80 Grant.
Slotter, 10" Putnam.
Slotter, 15" Dill.
Tumbler, 30" x 24" Smith.

SECOND-HAND MACHINERY

FOR SALE BY

**The H. A. Stocker Machinery Co., 566-72 W. Randolph St., Chicago
610 Merrill Building, Milwaukee, Wis.**

LATHES.

14"x6' LeBlond, compound rest.	26"x10' American, q. c. g.
16"x6' Lodge & Shipley.	30x12 Bradford, c. r. and chuck.
16"x6' American Tool Works.	30x12 Flather, compound rest.
16x6 Prentice Bros., compound rest.	32x14 Putnam, compound rest.
16x7 Blaisdel, comp. rest and taper.	32x18 Pittsburg, d. b. g.
18"x8' S. & B., q. c. g. and ck.	32x18 American, comp. r., q. c. g.
18"x8' Reed, compound rest.	36"x16' Bradford, t. b. g.
19x10 Cincinnati, compound rest.	36"x20' Walcott, c. r.
22"x 8' American, q. c. g.	42"x14' Bradford, t. b. g.
24"x14' Bradford.	50x20 New Haven, compound rest.

SHAPERS.

14" Rockford.	17 in. Economic, single grd. crank
16" Juengst.	18 in. Flather, single geared crank.
16 in. Steptoe, single geared crank.	22 Lodge & Davis.
16 in. Walcott, single geared crank.	28 Putnam.

PLANERS.

22x22x5 Whitcomb, good order.	36x36x10 Niles, 2 heads.
26x26x8 Whitcomb, (new, reduced price.)	36x36x12 Gray, 2 heads.
26"x26"x6' New Haven.	40x38x14 Putnam, old style, low p.
30x30x10 Flather, 3 heads.	42x42x14 Detrick & H., open side.
36x30x12 Sellers, old style, low price.	44x44x12 Pond, 2 heads.

GRINDERS.

No. 1 Cincinnati, universal cutter and tool.	No. 7 Becker, Lincoln pattern.
No. 2 Norton, universal cutter and tool.	No. 2 Brown & Sharpe, surface.
No. 4B Becker, vertical, with rotary table.	No. 2 B. & S., surface, with Walcott magnetic chuck.
	No. 2 Brown & Sharpe universal.
	No. 2 Walker, universal.

MILLING MACHINES.

No. 2 Hendy, b. g., plain.	No. 3 Fox, plain.
No. 2 Kearney & Trecker, vertical attach., all power feeds.	No. 3 $\frac{1}{2}$ Fox, plain.
No. 4 Garvin profiler.	No. 13 Garvin, plain.
No. 3 $\frac{1}{2}$ Waltham, bench.	No. 1 $\frac{1}{2}$ B. & S. plain, b. g.
	No. 3 LeBlond, universal.

UPRIGHT AND RADIAL DRILLS.

2 $\frac{1}{2}$ ft. Fosdick National radial.	38 in. New H., sl. hd., bk. gr., p. l.
5 ft. arm Western universal radial.	35 in. Blaisdel, sl. hd., b. g. & p. l.
6 ft. Bickford plain, cone radial.	25 in. Prentice Bros., sl. hd., b. g. & p. l.
Sellers double column drill, 72" between uprights, head travels full width of machine.	24" Cin.-Bickford, tap. attach.
	22" Cincinnati-Bickford, b. g., p. l. and tapping attachment.

POWER PRESSES AND PUNCHES.

No. 36 Niagara, geared.	No. 4 $\frac{1}{2}$ E. Rudolph & K. arch press.
Wold horn press.	No. 75 $\frac{1}{2}$ Bliss, single crank.
No. 3 $\frac{1}{2}$ Bliss toggle press, standard specifications.	No. 4 Blake & Johnson, with 11 in. presses.
No. 21 Bliss, o. b. l.	No. 3 Bliss "Stiles" geared punch.
No. 30 Perkins, open back inc. press.	Humphrey single end punch, 36 in. throat, cap. 1 $\frac{1}{2}$ in 1 in.
No. 2 Walsh, inclinable, o. b.	
No. 50 Crosby, open back press.	

SCREW MACHINES AND TURRET MACHINES.

1 $\frac{1}{2}$ " Warner & Swasey.	No. 60 B. & S. automatic.
No. 2 Pratt & Whitney.	No. 9 B. & S. automatic.
No. 2 $\frac{1}{2}$ Pratt & Whitney.	4- $\frac{1}{2}$ in. Cleveland automatic.
No. 51 National-Acme automatic.	14 Turret Lathes, small sizes.

BORING MILLS—VERTICAL AND HORIZONTAL.

76" Bullard boring and turning mill, 2 heads, motor drive.	34 in. Colburn, swivel turret.
37 in. Niles, 2 heads.	10 ft. Betts, 2 heads.
42 in. Bullard, 1 swivel hd., 1 tur. hd.	80 in. Pond, 2 heads.
	No. 2 Fosdick hor., good order.

SECOND-HAND MACHINERY

The H. A. Stocker Machinery Co.,—Continued.

GEAR CUTTING MACHINES.

No. 3 Farwell hobbing machine.
Reynolds hobbing machine.
22 in. Cincinnati, spur only.

42 in. Gould & E., spur only.
30 in. Flather, spur only.
26 in. Brown & Sharpe, spur only.

MISCELLANEOUS.

Bolt cutter, 1½ in. Schlenker.
Bolt header, 4 in.
Bulldozer, No. 5 Ajax.
Centering machine, 4 in. Whiton.
Cold saw, No. 4 Birdsboro, with six extra saws.
Cutting-off mche., 5" Hurlbut & R.

Hammer, drop, 500 lb. Standard.
Hydraulic press, 40 ton.
Hydraulic press, 100 ton, with pump.
Pipe machine, 4 in. Saunders.
Punch and shear, No. 5 L. & A.
Riveter, 3-16 in. Adt.

FOR SALE BY

Rumely-Wachs Machinery Co., 126 N. Jefferson St., Chicago, Ill.

LATHES.

30"x9" Draper.
30"x12" LeBlond, quick change.
30"x12" LeBlond standard.
30"x16" Blaisdell.
22"x10" Gleason.
30"x24" Fifeild.
30"x14" Fifeild, triple geared.

30"x18" Niles.
32"x12" Schumacher & Boye, q. c.
36"x12" Schumacher & Boye.
36"x14" Fifeild.
36"x14" New Haven.
Large variety of lathes from 11" to 18"

UPRIGHT DRILLS.

24" Barnes, stationary head.
31" Hamilton, sliding head.
30" Bickford, manufacturers' type.
30" Barnes, sliding head.
30" Sibley & Ware, sliding head.
20" Gould & Eberhardt, sliding hd.
30" Lodge & Davis, sliding head.

3" American, plain radial.
3" Hilles & Jones, plain radial.
41" Bickford, plain radial.
Also large assortment of 20" drills and smaller, in single and multiple spindle.

SHAPERS.

10" Springfield, single geared.
10" Lodge & Davis, single geared.
10" Hendey, friction.

15" Gould & Eberhardt.
18" Walcott, triple geared.
22" Walcott, triple geared.

MILLING MACHINES.

No. 2 Kempsmith, plain.
No. 3 Kempsmith, plain.
No. 3 Cincinnati, plain.
No. 2 Kempsmith, Lincoln.

No. 3 Becker, vertical.
No. 6 Becker, vertical.
Also lot of small milling machines and hand millers.

PLANERS.

10"x24"x6" Whitcomb.
10"x36"x6" Flather.
10"x36"x7" Niles.
10"x36"x8" Putnam.

36"x36"x8" American, double head.
36"x35"x15" Powell, frog and switch.
Number of smaller planers.

MISCELLANEOUS.

Rolling mill, 42" Bullard, 2 heads.
Rolling mill, 42" Colburn, 2 heads.
Rolling mill, horiz., Niles, 24" bar.
Cutter and reamer grinder, Cincin'ti.
Cutter and reamer grinder, Greenfield.
Cutter and reamer grinder, LeBlond.
Cutter and reamer grinder, No. 2 Norton.
Grinder, plain, No. 2 Landis.
Grinder, No. 00 Baker Bros.
Grinder, No. 2 Mitts & Merrill.
Grinder, No. 3 Baker Bros.
Lathe, metal spinning, 22" Prybil.
Lathe, No. 3 Bardons & Oliver, Fox Monitor.
Lathe, 18"x6" Springfield, Fox Mon.

Lathe, 24" Conradson, manufact'g.
Lathe, 21" Gisholt, late model.
Pipe machine, 6" Saunders.
Punch press, No. 3 Walsh, o. b. i.
Punch press, No. 21 R. & K., o. b. i.
Punch press, No. 3 Crosby, sol. bk.
Punch press, No. 4 Crosby, sol. bk.
Punch press, No. 23 Michigan, s. bk.
Screw machine, No. 4 Warner & S.
Screw machine, No. 6 Brown & S.
Steam hammer, 350 lb. Bement-M.
Turret lathe, No. 2 Bardons & O.
Turret lathe, flat, 2x24 Jones & Lamson sliding head.
Turret lathe, 18"x6" Lodge & D.
Turret lathe, 25" Warner & Swasey.

Write for complete List just issued.

SECOND-HAND MACHINERY

FOR SALE BY

F. P. Schlelein Mch. Co., 114-116 W. Park Way, N. S., Pittsburgh, Pa.

Air compressor, steam, 9 $\frac{1}{2}$ "x9 $\frac{1}{2}$ "x10"
Westinghouse, with tank.
Belting, 8" double leather, 35 ft.
Blower, pressure, No. 4 Buffalo
5" outlet.
Clutch pulley, 20"x8", 2" bore.
Exhaust fan, No. 9 Champion, 16"
inlet and outlet.
Hammer, steam, 600 lb. Pittsburg,
double frame.

Grindstone frame, iron, 28x3" stone.
Lathe, bench, 7" Goodell-P., pw.
Lathe, engine, 10"x4' Sebastian.
Lathe, engine, 14"x8' Monarch.
Lathe, turret, No. 4 Bardons & O.
Lathe, turret, 12" Lodge & Davis.
Planer, pony, 24"x6" Fay & Egan.
Radial drill, 4 $\frac{1}{2}$ " Baush.
Wire cutter, capacity 1 $\frac{1}{2}$ ", Shuster
hand power.

FOR SALE BY

Enterprise Machy. Co., 521 Monroe St., Phone Main 1295, Chicago

Drill, P. & W. 13", hd. & ft. fd... 35.
Drill, radial, Pond, 8'..... 500.
Grinder, surface..... 26.
Grinder, paper knife, 4' (\$300)..... 90.
Grinder, cyl., 1-32" cut (guar)... 850.
Lathe, 9" screw cutting (guar)... 48.
Lathe, 18"x8" fine condition... 150.
Lathe, turret, P. & W. 4'..... 125.
Lathe, turret, 24"..... 90.
Lathe, turret, 24" W. & S..... 335.

Lathe, turret, 24" B. & O..... 60.
Miller, plain, power feed..... 8.
Planer, 54"x54"x20' Niles, 4 h... 200.
Planer, 30"x30"x8'..... 23.
Planer, 24"x24"x6' Gray..... 50.
Punch press, small, power..... 8.
Punch press, 24-ton drawing... 130.
Punch, 2 in 2 1/2 in 110; 2 in 2..... 8.
Shaper, wood, 2-sp., 700 lbs..... 3.
600 other tools.

FOR SALE BY

The Bicknell Mfg. & Supply Co., - - - - - Janesville, Wis.

LATHES.

12"x 6' Pratt-Whitney.
14"x 6' Star.
18"x10' Reed.

18"x11' New Haven.
25"x16' New Haven.
24"x 6' boring lathe.

DRILLS.

10" friction, Barnes.
10" friction, Albany.
20" lever.

22 $\frac{1}{2}$ " lever, Barnes.
36" radial, Morris.
36" b. g., Bement.

MISCELLANEOUS.

Milling machines.
Planer 16x3.
Planer 25x9.

Planer 30x8.
Punch and shear, single end.
Punch and shear, double end.

FOR SALE BY

McCoy & Brandt, - - - 410 House Building, Pittsburgh, Pa.

Bending rolls, 6' 1/2" plate.
Bending rolls 8' Badger, 1/2" plate.
Bending rolls, 8' Newbold, 1/2" plate.
Bolt cutter, 3" Acme.
Borer, horizontal, 3 3/8-16" spindle.
Boring mill, 72" Niles.
Boring mill, 84" New Era.
Bulldozer, No. 5 Ajax.
Bulldozers, No. 2 and No. 5 W. W.
Compressor, 9"x10"x9" Dayton duplex, 265 cu. ft.
Drill, sensitive, 3-spindle Gardam.
Forging machine, 1 1/2" National.
Hammer, 500 lb. steam, Bement-M.
Hammer, 500 lb. steam, Morgan.

Melting furnaces, Rockwell Simple.
Planer, 42"x42"x15' New Haven.
Punch, No. 2 L. & A., 9" throat.
Punch, No. 7 L. & A., 18" throat.
Punch, 36" Cleveland, cap. 2" x 1/2".
Punch, No. 14 W. W. dbl. end, 18" throat.
Punch, horiz. 6" throat, Thompson.
Screw Machine, 1/2" Cleveland auto.
Shaper, 10" Putnam, traverse head.
Shaper, 18" Hendy, b g.
Shaper, crank, 18" Lodge & Davis.
Speed lathe, 12"x 5' Blount.
Turret lathe, No. 4 J. & L.
Turret lathe, No. 2 Warner Swasey.
1 1/2" hollow spindle.

SECOND-HAND MACHINERY

FOR SALE BY

The Motch & Merryweather Machinery Company,
707-715 Lakeside Av., N. W., Cleveland, Ohio
Branches: Detroit, Cincinnati, Pittsburg.

Below we list a few samples of our stock of rebuilt machine tools. These machines may be inspected in Cleveland and are ready for immediate delivery.

BORING MILLS.

- 37" Niles, double swivel head with four face plate jaws, friction feed, very good condition.
- 27" Bullard, double swivel head, rebuilt by factory, first class condition.
- 72" Pond, double swivel head, very good condition.
- 76" Bullard, latest model, first class.
- 2" bar Lucas, belt drive, column type.
- 4" bar Bement-Miles horizontal table type boring machine.

DRILL PRESSES.

- 1, 2, 3, 4 and 6 spindle 14" sensitive Foote-Burt drills.
- 3 spindle Barnes, back geared, power feed, first class.
- 8 spindle Gardam multiple.
- 4" Prentiss, all gear drive, late model, very good.
- 5" Fosdick, gear drive, first class condition.
- 22" Pond, sliding head, heavy machine, old pattern.

GEAR CUTTERS.

- 36" G. & E., late type, excellent condition (spur).
- 40" Flather's spur, latest type, first class condition.
- 48" G. & E. spur, for pinion cutting, very good condition.
- 50" spur and bevel, G. & E., good condition.
- 66x14" G. & E. spur, with hobbing attachment, very good condition.

GRINDING MACHINES.

- Head No. 60 cylinder grinders, latest model, good as new, (2).
- 6x32 Norton plain grinder, late model.
- 10x50 Norton plain grinder, late model.
- 18x36 Norton plain grinder, rebuilt at factory, first class condition.

LATHES.

We have all sizes of lathes from 10 in. to 50 in. in stock.

MILLING MACHINES.

- No. 2 Kempsmith, open belt, range 19½" by 3½" by 16".
- No. 2B Brown & Sharpe, plain.
- No. 2 heavy Brown & Sharpe, plain, first class condition.
- No. 5 Brown & Sharpe, gear drive, rack feed, very good condition.
- No. 2 Becker Brainard, vertical, late model, good condition.

PLANERS.

- 22"x4' and 6' Gray, single swivel head, very good condition.
- 16"x4' Hendey, friction, very good condition.
- 24"x6' Powell, single swivel head, latest model, good as new.
- 28"x7' Gray, single swivel head, first class condition.
- 36"x10' Sellers, spiral drive, single swivel head, very massive machine, in good shape.
- 48"x16' Detrick & Harvey open side planer, with two heads and rolling table, all in very good condition.

SHAPERS.

- 15" Hendey, friction tilting table, good condition.
- 16" Queen City, back geared crank, very good.
- 22" Smith & Mills, shifting belt, good as new.
- 24" Gould & Eberhardt, bk. grd. crank, power down feed to head, good shape.
- 26" Cincinnati, shifting belt, very good, cheap.
- 28" Hendey, friction tilting table, very good.

TURRET LATHES AND SCREW MACHINES.

- 1" Krauth & Benninghofen screw machine, same as new.
- 2x24 Jones & Lamson, sliding head with collet and bar equipment.
- 2x24 Jones & Lamson, fixed head, bar equipment.
- 21" Gisholt turret lathe, latest model, good as new.
- 21" Davis chucking machine.
- No. 4 Bardons & Oliver, turret lathe, with geared head, equipment, bar work.
- No. 2 Bardons & Oliver turret lathe, fitted for bar work, first class condition.

SECOND-HAND MACHINERY

FOR SALE BY

The H. A. Smith Machinery Co., 384 W. Fayette St., Syracuse, N. Y.

- No. 157-S Air compressor, 10x10x12 Chicago Pneumatic, single stage.
 No. 226-A Bending rolls, 8', self contained.
 No. 259-S Boring mill, vertical, 30" Gisholt.
 No. 236-S Lathe, 16" x 8' Hendey, elevating rest.
 No. 225-S Lathe, 20" x 8' Reed, compound rest.
 No. 188-S Lathe, 21" Gisholt, almost new, and considerable equipment.
 No. 185-A Lathe, 42" x 16' Fifield, triple geared.
 No. 235-S Milling machine, No. 32 Kempsmith, with dividing head.
 No. 254-S Planer, 24" x 24" x 6', Putnam.
 No. 186-S Planer, 42" x 42" x 14' New Haven, single head.
 No. 228-A Planer, 54" x 54" x 8' Fitchburg.
 No. 225-A Plate planer, 19'.
 No. 260-S Shaper, 17" Kelly.

FOR SALE BY

Western Machinery Co., 6th and Baymiller Sts., Cincinnati, Ohio.

We have just purchased another list of machine tools at a low figure on which we are in position to name low cash prices if we can turn same without warehousing it. All can be inspected here at Cincinnati.

LATHES.

- 26"x12' Niles, compound rest.
 26"x13' Powell, compound rest.
 21"x12' LeBlond, compound rest.
 18"x12' Kahn-Mayer, C. R., taper.
 18"x10' American, compound rest.
 16"x 8' Flather, plain rest.
 16"x 6' Bradford-Mueller, plain rest, (3.)

MISCELLANEOUS.

- Radial drill, 4' Niles universal.
 Shaper, 14" Niles, traverse head, very heavy.
 Shaper, 24" Niles, traverse head, very heavy.

We also carry a full line of lathes, planers, shapers, radial and plain drill presses, No. 2 milling machine with index centers, 8' Robinson brake, 16' bulldozer and other machine tools, machinery and supplies.

FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,
 210-212 Washington Ave., St. Louis, Mo.**

LATHES.

- 14"x12' American.
 20"x 8' Blaisdell.
 22"x10' American.
 26"x15' Pond.
 44"x16' Pond.
 60"x28' New Haven.
 24" Gisholt, turret.
 24" Stevens, pulley.

PLANERS.

- 16"x16"x18" crank.
 26"x26"x 7' Niles.
 26"x26"x 8' Lodge & Davis.
 36"x36"x10' American.
 44"x44"x16' Niles.

DRILLS.

- 24" American, sliding head.
 28" American, sliding head.
 32" American, sliding head.
 48" arm Fosdick, radial.
 60" Bickford, goose neck.

AIR COMPRESSORS.

- 6x6 belted.
 8x8 belted.
 8x8x8 steam driven.
 10x12 belted.
 10x10x10 steam driven.
 500 ft. steam driven.
 960 cu. ft. steam driven.

MISCELLANEOUS.

- Bolt cutter, 3".
 Cold saw, No. 16 Higley.
 Hammer, belted, 80 lb.
 Hammer, drop, 200 lb. Mossburg & Granville.
 Hydraulic jack, 50 ton.
 Keyseater, No. 6 Morton.
 Miller, plain, No. 3 Cincinnati.
 Punch, Pels, 23" throat.
 Screw machine, 11-16" Pratt & W. automatic.
 Screw machine, No. 2 Bardons & O.
 Screw machine, 1" Cleveland auto.
 Slotter 16" New Haven

SECOND-HAND MACHINERY

FOR SALE BY

The Garvin Machine Co., Spring and Varick Sts., New York City
LATHES.

- 108 K-18"x 6' Bradford mill lathe, complete, with pl. rest. In good order.
- 111 H-14"x 6' Hendey-Norton lathe, plain rest. Condition fair.
- 96 S-20"x 10' Flather compound test lathe. Good condition.
- 74 L-18"x 10' Cyclone lathe, compound rest, with 12" 4-jaw chuck, complete with 4" raising blocks. Practically new.
- 74 T-14"x 10' Cyclone lathe, with 9" 4-jaw independent chuck, compound rest. Practically new.
- 59 K-24"x 16' bed lathe, solid spindle, plain rest. Cheap.
- 74 L-24"x 12' Niles lathe, old lathe, cheap.
- 91 H-22"x 12' Putnam raised in sand to swing 27", swings over carriage 20', 8' 8" between centers, compound rest. Old lathe at a very cheap price.
- 93 S-12"x 5' Robbins speed lathe, with 4" 3-jaw chuck. Condition good.
- 92 H-12" Garvin speed lathe, wheel tail stock. Practically new.
- 64 T-Pratt & Whitney bench lathe, with slide rest, two-speed countershaft, eleven collets. Condition good.
- 9 C-Rivett bench lathe, with all attachment; an old lathe, cheap.

SHAPERS.

- 95 T-16" Steptoe shaper. Condition good.
- 72 C-16" Style "G" shaper. Condition good.

DRILLS.

- 6 K-Four-spindle Rockford sensitive drill. A-1 condition.
- 9 K-Four-spindle Sigourney drill, two chucks. Condition fair.
- 2 L-Four-spindle Woodward & Rogers drill. Condition fair.
- 93 C-Eight-spindle Gardam drill, weight 2000 lbs. Practically new.

PLANERS.

- 6 S-24"x 24"x 6' Flather planer. In good condition.
- 77 L-24"x 24"x 5' New York Steam Engine planer. Cond. fair. Low price.
- 8 S-10"x 10"x 30" Federal planer, with countershaft. Practically new.
- 6 H-48"x 40"x 14' New Haven planer, weight 20,000 lbs., one head on the cross-rail, power elevating attachment. A-1 condition.
- 9 T-40"x 36"x 18' New Haven planer, wt. about 18,000 lbs. Good order.
- 8 C-40"x 36"x 25' New Haven planer. weight 21,000 lbs. Good condition.
- 6 K-48"x 10' Hethington planer, one head. An old planer but in good condition and at a low price.

SCREW MACHINES.

- 9 L-Meriden undercut form turret machine, swings 19" wire-feed. In first-class condition, low price.
- 92 C-No. 5 Windsor screw machine, back-geared, power feed. An old machine, in good condition, low price.
- 95 T-No. 12-4 Garvin screw machine, geared friction head, wire-feed capacity 2", power feed to turret. Condition fair.
- 6 S-No. 2 Plain Pratt & Whitney screw machine, no wire-feed. Condition good, low price.
- 94 H-14"x 5' Turret lathe, with Fox monitor turret. Cond. fair, low price.
- 9 H-Jones & Lamson turret lathe, old style, friction head, turret power feed to same. Good order, low price.

MILLING MACHINES.

- 63 S-No. 12 Garvin plain milling machine. Good order.
- 63 L-No. 4 Brainard plain milling machine. Good order.
- 63 K-Garvin duplex milling machine, 1894 pattern, overhauled and in A-1 condition.

MISCELLANEOUS.

- 77 H-Exhauster, planing mill, Buffalo 4" steel plate.
- 92 S-Pipe machine, 1" Williams, practically new.
- 29 H-Profilers, No. 4 Garvin, back geared spindles, special width and height, good order, low price, (2).
- 9 C-Riveting machine, Grant.
- 95 T-Stud machine, Pratt & Whitney, automatic.
- 6 L-Tapping machine, horizontal, No. 2 Garvin, good condition.
- 98 C-Tapping machine, vertical, No. 1 Garvin, good condition.
- 9 K-Tapping machine, No. 2 Garvin automatic, old style, (2).
- 9 T-Tapping machine, Tuttle.

SECOND-HAND MACHINERY

FOR SALE BY

Chas. Molitor Machinery Co.,

215 S. Clinton St. Chicago, Ill.

Air compressors.
Air riveters and presses.
Beam shear.
Bolt and pipe threaders, sgl. & dbl.
Car wheel boring machine, 50"
Circle shear, 48" Niagara.
Crane derricks.
Drill press, 3 spindle, heavy.
Grinder, universal, No. 1 B. & S.
Hammers, drop and trip.

Lathes, 12" Hendy, taper, collat.
Lathe, 20"x10" Springfield, tr. gd.
Lathe, 24"x8" Lodge & Shipley.
Miller, universal, No. 14 Braintree.
Planer, 26"x28"x8" Pond.
Planer, 36"x36"x16", double hand, side arm.
Punches and shears, heavy.
Squaring shear, 5'.
Turret lathes, Fox, modern, (3).

100 other iron and woodworking machines, motors, etc., etc.

FOR SALE BY

Brown & Zortman Machinery Co., 2535 Liberty Ave., Pittsburg, Pa.

LATHES.

2x24 in. Jones & Lamson.
18 in. American Tool & Machine
brass lathes, (2).

21 in. x 8 ft. New Haven.
60 in. x 18 ft. New Haven, with 11 ft.
extension, triple geared.

PLANERS AND SHAPERS.

30x30x12 Sellers planer.
42x42x18 Betts planer.
84x84x14 Niles planer, 3 heads.
28x28x6 Lodge & Davis planer.
26 in. Cincinnati back geared shaper.

24 in. Juengst shapers, (2).
26 in. Kelly shaper.
28 in. Juengst shaper.
30 in. Morton draw cut shaper.

RADIAL DRILLS.

No. 1 Bickford, plain.

30 in. Mueller, plain.

MISCELLANEOUS.

Grinder, universal, No. 2 Diamond.
Grinder, universal, No. 2 Landis.

Pulley boring machine, 50 in. Niles.

FOR SALE BY

Frevert Machinery Co.,

38 Vesey St., New York City

GRINDERS.

No. 3 B. & S., surface.
26" Diamond, roll and spindle.
No. 1 Cincinnati, plain cutter & reamer.

24" Yankee style A., twist drill.
No. 2 Diamond, wet tool.

DRILLS.

60" post drill, b. g., wheel feed.
4-spindle turret drill.

4-spindle Dwight Slate.
1/2" capacity bench electric drill.

POLISHING HEADS.

No. 22 Bridgeport, 14".
12" Diamond.
No. 14 Diamond.

No. 6 Green electric.
14" R. O. polishing machines.

SCREW MACHINES.

1/2" P. & W., hand.
1/2" Prentiss, hand.
13-32" No. 1 B. & S. automatic.

7-16" Cleveland automatic.
1 1/2" B. & O. No. 3.

SHAPERS AND PLANERS.

16" Smith & Mills crank shaper.
30" Cincinnati triple gd. shaper.
26"x36"x8" P. & W., 1 hd. on rail.

10x10x24" Hendey bench planer.
9x6x24" Federal planer, iron stand.

MISCELLANEOUS.

Gear cutter, Whiton automatic.
Gear & pinion cutter, Slate auto.
Hammer, power, 50 lb. Forsythe.
Hammer, power, 100 lb. Williams-W.
Lathe, 12"x5' Davis, s. c., el. rest.
Lathe, 14"x8' Robbins, s. c., pl. r.

Lathe, 15" brass finishers, Fox.
Miller, No. 2 Putnam, univ., b. g.
Miller, hand, Chicago.
Profiler, No. 3 Garvin.
Riveter, 1/2" Adt rotary.

SECOND-HAND MACHINERY

FOR SALE BY

The Cordesman-Rechtin Co.,

Cincinnati, Ohio

Drills, radial and upright.

Emery grinders.

Lathe, screw cutting, 18" New Haven.

Lathe, bar and chucking, Jones & L.

Lathes, pulley, Streit.

Planers, New Haven, 3 ass'd sizes.

Planer, 28" Silk & Smith.

Vises.

Many other useful things around a machine shop, all fully illustrated and told in our Bargain List. Descriptive pamphlet of these tools sent on request.

FOR SALE BY

Frank Toomey, Inc.,

127 N. Third St., Philadelphia, Pa.

LATHES.

31"x30' Baker, blocked to 62 1/2".

36"x16" Niles.

30"x22" Bement-Miles.

30"x18" Bement-Miles.

28"x16" Fitchfield.

27"x21" Pratt & Whitney, taper att.

26"x17" Johnson, taper attachment.

25"x12" Fitchfield.

22"x18" Harrington.

21"x9" Lodge & Davis.

20"x10' American, taper attach.

20"x8' Fay & Scott, universal, (2).

18"x10' Draper.

18"x8' Bradford.

18"x8' Reed.

16"x10' Niles.

16"x6' Hendey.

16"x6' Fitchburg.

6" Rivet lathe, all attachments.

PLANERS.

60"x60"x14' Pond, two heads.

48"x48"x16' Detrick & H., 2 heads on cross rail, 1 side hd., arranged to plane 10".

33"x33"x12' Woodward & Powell.

24"x28"x7' New Haven.

24"x24"x6" American, 2 heads.

22"x22"x6" Powell, two heads.

12" Moore crank planer.

SHAPERS.

24" American.

20" Gould & Eberhardt.

18" American.

16" American.

12" Bement.

RADIAL DRILLS AND DRILL PRESSES.

5' Western Mch. Co., universal.

28" Superior, sliding head.

24" Barnes, sliding head.

MILLING MACHINES.

36"x12' slab, heavy pattern.

No. 3 Pedrick & Ayer universal,

36" table.

No. 5-B Becker-Brainard vertical, motor driven.

No. 3 Becker Brain'd pl., table 12x42.

No. 1 Brainard plain, table 12x48.

No. 1 Van Norman duplex, table 2x9.

Pratt & Whitney plain, table 55x5.

MISCELLANEOUS.

Bolt cutter, 1 1/2" National.

Boring mill, 72" Bickford, 2 heads.

Boring mill, vert., 36" Bridgeport.

Boring mill, horiz., 48" Bement.

Boring mill, cylinder, horizontal,

Barrett, 2 spindles.

Boring and turning mill, 48" Sellers,

2 heads.

Boring and turning mill, vert., 60"

Sellers, 2 heads.

Broaching mach., No. 2 LaPointe.

Grinder, universal, No. 2 Brown &

Starpe.

Grinding planer, 22"x22"x5' Spring-

field.

Hammer, steam, single frame, 400-

lb., Chambersburg.

Hammer, 400 lb. Bement, single

frame steam.

Hammer, board drop, 500 lb., Pratt

& Whitney.

Hammer, 800 lb. Chambersburg, single frame steam.

Internal grinding lathe, 16"x5' Diamond.

Miller, duplex, Beaman & Smith, table 16"x8'.

Pipe machines, 3" and 6" Curtis & Curtis, hand power, (2).

Pipe mchs., 6" Eaton, Cole & B.

Pulley boring machine, 60" Harrington, upright.

Punch and shear, double end, No. 2 Royersford.

Punch and shear, dbl. end, Sellers, 30" throat, 1 1/2" cap., wt. 35,000 lbs.

Punch & s., dbl. end, 25" throat.

Shear, single end, 50" throat, 2" capacity, engine driven.

Turret lathe, No. 6 Brown & S.

Turret lathe, 2x24" Jones & L., with equipment.

Dynamos, motors, engines and boilers, and second-hand. Send for our stock

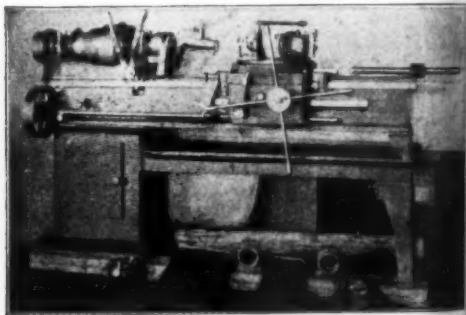
books.

Second Hand Machines

Lathes.

- 14" x 6' Goddard, compound rest.
- 14" x 6' American, quick change gears, taper.
- 14" x 6' Whitcomb-Blaisdell, with taper and chuck.
- 16" x 8' Lodge & Shipley patent head.
- 16" x 8' Lodge & Shipley patent head, with turret tool post.
- 16" x 8' Flather, compound rest, chuck.
- 18" x 8' Lodge & Shipley patent head.
- 18" x 8' Lodge & Leiple patent head, turret tool post.
- 18" x 10' Lodge & Shipley patent head.
- 18" x 8' American gap lathe.
- 18" x 15' Whitcomb-Blaisdell, compound rest.
- 20" x 10' American geared head.
- 20" x 10' Flather, compound rest.
- 20" x 10' Lodge & Shipley patent head.
- 24" x 12' Bradford, compound rest and taper.
- 30" x 12' Schumacher & Boye, 5 step cone, compound rest.
- 30" x 15' New Haven, compound rest.
- 60" x 16' Putnam, compound rest.

A Sample of our stock



2"x24" Jones & Lamson Flat Turret Lathe, Cone Drive. Friction Head. Turret Lathes.

- No. 2 Warner & Swasey Turret Lathe.
- 18" x 6' Fox Monitor Turret Lathe.
- 21" and 25" Heavy Gisholt Turret Lathes.
- 42" New Haven heavy pattern.

Planers.

- 20" x 20" x 4' Whitcomb.
- 20" x 30" x 8' Putnam.
- 38" x 38" x 10' Gray.
- 48" x 36" x 12' Cincinnati, two heads.

Send for complete list and full descriptions.

Marshall & Huschart Machinery Company
 17 S. Jefferson St., Chicago. 334 N. Capitol Ave., Indianapolis.
 915 Chemical Bldg., St. Louis.

"TH

Ne

Pric

Double
Swin
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Triple-g
Putna
Triple-g
Putna
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Back-ge
Fifield
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Putna
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Back-ge
ft. Port
Back-grd.
+Spindle
High Sp
frs. Styl
Newton
to. 15 Pl.
to. 3 Univ
Garvin.
in. Uprig
Mill. Jon
in. Ditto
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in. Auto
Gould &
in. Wiley
Full Equi
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Triple-gear Lathe 56-in.x16 ft.
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Triple-gear Lathe 52-in.x28-ft.
Putnam.

Gap Bed Lathe 48-72-in.x14 ft.
Ext. Harrington.

Triple-gear Lathe 48-66-in.x24
ft. Fitchburg.

Triple-gear Lathe 42-in.x20 ft.
Betts.

Back-gear Lathe 38-in.x26 ft.
Fisfield.

Back-gear Lathe 36-in.x16 ft.
Putnam.

Back-gear Lathe 30-in.x14 ft.
Bement-Miles.

Back-gear Lathe 28-in.x15 ft.
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48-in.x16 ft. Planer, 3 Hds. Pond.

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Detrick & Harvey.

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36-in.x10 ft. Planer, 2 Hds. Pond.

36-in.x8 ft. Planer, 1 Head Pond.

26-in.x7 ft. Planer, 1 Head

22-in.x5 ft. Planer, 1 Head
Pratt & Whitney.

138-in. Swing Radial Drill, Hvy.
Ptn. Prentice Brothers.

120-in. Swing Radial Drill, Hvy.
Ptn. Blekford Speed Box.

96-in. Swing Radial Drill, Half
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84-in. Swing Radial Drill, Plain
Baush M. T. Co.'s.

60-in. Swing Radial Drill, Speed
Box, American.

48-in. Swing Radial Drill, Plain
American.

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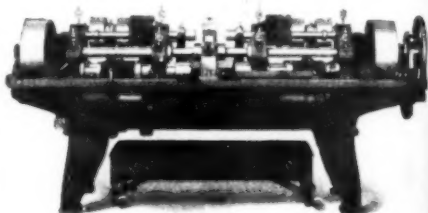
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